

Report

**Assessment of Conditions for
Biodiversity and Fragile Ecosystems
Conservation and Management in Peru**

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Report

Assessment of Conditions for Biodiversity and Fragile Ecosystems Conservation and Management in Peru

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Table of Contents

Table of Contents	i
List of Acronyms and Abbreviations.....	iii
Executive Summary	v
1. Forest and Biodiversity Conservation in Peru: Opportunity and Problem	1
1.1 Background	1
1.2 The Development Challenge: Addressing the Threats to Forests and Biodiversity....	2
2. Activity Rationale.....	6
2.1 Mission Environmental Strategy.....	7
3. Policy and Institutional Setting	11
3.1 Biodiversity Values	13
3.2 Forestry Values.....	13
4. Activity Goal and Purpose	16
5. Activity Interventions.....	17
5.1 Policy Interventions	17
5.2 Site-Based Interventions	20
6. Definition of Success.....	23
7. Plan of Action	26
7.1 Activity Management	26
7.2 GoP Institutional Involvement.....	28
7.3 Regional and Local Partners.....	28
7.4 Donor Coordination.....	30
8.0 Feasibility Analyses, Key Assumptions and Related Risks.....	31
Bibliography.....	34

Annexes

Annex A: Initial Environmental Examination with Threshold Decision.....	A1
Annex B: Analysis of Key Threats to Biodiversity and Fragile	B1
Annex C: Institutional Analysis	C1
Annex D: Socio-Economic	D1
Annex E: Gender Analysis	E1
Annex F: Policy Analysis.....	F1
Annex G: Creating a Carbon Sequestration SO-Level Indicator	G1
Annex H: Matrix Review and Priorities Suggested for Site Interventions	H1

List of Acronyms and Abbreviations

AD	USAID/Peru's Alternative Development Project
ANP	Protected Natural Area
APECO	Peruvian Association of the Conservation of Nature
BIOCOM	Biodiversity Component of SENREM
BSNP	Bahuaja-Sonene National Park
BSP	Biodiversity Support Program
CANP	Cerros de Amotape National Park
CARE	Committee for Assistance and Relief Everywhere
CBD	Convention on Biological Diversity
CI	Conservation International
CITIES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CNF	National Forestry Chamber
CONAM	National Environmental Council
CTAR	Transitional Committee(s) for Regional Administration
CTM	Multisectoral Technical Commission
CTMR	Regional Multisectoral Technical Committee
DGANPFS	General Protected Areas and Wildlife Bureau
DGF	General Forestry Bureau
EEZ	Ecological Economic Zoning
ENRE	Environmental and natural resource economics
FADEMAD	Madre de Dios Departmental Agrarian Federation
FAO	United Nations Food and Agriculture Organization
FCCC	Framework Convention on Climate Change
FENAMAD	Native Federation of the Madre de Dios River and Tributaries
GoP	Government of Peru
GTZ	[German] Technical Cooperation Agency
HAP	Peruvian Amazon Research Institute
HBS	Huascarán National park and Biosphere Reserve
INADE	National Institute for Development
INRENA	National Institute of Natural Resources
IR	Immediate result
ITTA	International Tropical Timber Agreement
KfW	[German] Development Credit Bank
LTNR	Lake Titicaca National Reserve
MAG	Ministry of Agriculture
MBS	Manu National Park and Biosphere Reserve
MEF	Ministry of Economy and Finance
MEM	Ministry of Energy and Mines
MINPE	Ministry of Fisheries
MITINCI	Ministry of Industry and Tourism
MoE	Ministry of Education

MoH	Ministry of Health
MTNS	Manglares de Tumbes National Sanctuary
NWBR	Northwest Biosphere Reserve
OENR	USAID/Peru's Office of the Environment and Natural Resources
OPI	Office of Indigenous Peoples, PROMUDEH
PCM	Presidency of the Council of Ministers
PNR	Paracas National Reserve
PROMUDEH	Ministry for the Promotion of Women and Human Development
PRONAMACHCS	National Project for Watershed Management and Soil Conservation
ProNaturaleza	Peruvian Foundation for the Conservation of Nature
PSNR	Pacaya-Samiria National Reserve
Ramsar	Convention on Wetlands (signed 1971, Ramsar, Iran)
RANP	Río Abiseo National Park
SENREM	USAID/Peru's Sustainable Environment and Natural Resource Management Project
SINANPE	National System of Natural Areas Protected by the State
SO4	USAID/Peru's environmental strategic objective
TCRZ	Tambopata-Candamo Reserved Zone
TMI	The Mountain Institute
TNC	The Nature Conservancy
TNP	Tingo María National Park
UNALM	National Agrarian University, La Molina
UNAP	National University of the Peruvian Amazon Basin, Iquitos
UNAS	National Agrarian University of the Jungle, Tingo María
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNSAAC	San Antonio Abad National University of Cusco
USAID	United States Agency for International Development
USG	United States Government
WCI	Wildlife Conservation International
WWF	Worldwide Fund for Nature

Executive Summary

Peru is one of the world's richest countries in biological diversity and forest resources. It is also a country where climate change mitigation efforts involving forest management can still be undertaken with significant medium-term results at a relatively lower cost than in countries where resource degradation is more advanced. Measures to maintain forest cover will combat the loss of biological diversity and slow the emission of carbon dioxide from the burning of forests for agricultural and livestock production.

The threats to reduced biological diversity are grouped in two categories: policy threats and site specific threats to diverse biologically-rich ecosystems. Divided environmental authority, misconception of the value of conserving biodiversity and forests, inadequate legal norms, lack of participation of the local population in the management of protected areas, unsustainable land and resource use, uncontrolled mining and hydrocarbon exploration in protected areas, uncontrolled tourism expansion, and deforestation all contribute to loss of biological diversity. The most appropriate response to these threats is one that addresses improvements in the management of biological diversity and forests, combined with efforts to generate economic alternatives for local communities living in and around threatened ecosystems.

USAID/Peru has a comparative advantage for addressing these problems based on its history of support for sustainable natural resource management in rural areas, lessons learned from those experiences and Agency experiences elsewhere and the 1995 Mission Environmental Strategy which rates as high priorities, inadequate incentives in the forest sector, pressures on protected areas and production forests, the subordination of protected areas to industrial interests, protected area management and an inappropriate legal and regulatory framework. This advantage is strengthened by USAID's hands-on approach to development that includes direct implementation coordination in the field.

The Mission Environmental Strategic Objective (SO4) has already addressed some of these concerns through the recent Employment and Natural Resources Sustainability (ENRS) Project in the Pacaya-Samiria National Reserve, pilot projects and the Sustainable Environmental and Natural Resources Management (SENREM) Project, in particular the BIOCOP component, now being carried out under a bilateral agreement with the National Environmental Council (CONAM). Moreover, the SO4 team has been coordinating with other donors and potential partners in unusually participatory planning processes in anticipation of this Activity. These preliminary efforts should pay off through increased Activity efficiency and effectiveness, while leveraging partner organization support and complementary effort.

The design of this activity began earlier this year with the development of a concept paper by Mission staff. A Mission-wide review of the proposed activity on March 26, 1998 resulted in approval of the concept paper by the Mission Director and a series of issues and decisions to be addressed and/or incorporated during activity design. Principal among these were decisions that this would be a separate activity from SENREM and that CONAM would not be the principal implementing entity under a bilateral agreement with the GoP. Subsequent to the concept paper approval, SO4, assisted by various analyses from the Environmental Policy and Institutional Strengthening (EPIQ) IQC, developed this Activity Design Document. This Activity has been designed in close collaboration with G/ENV and LAC/RSD and in such a manner as to be consistent with and adaptable to any regional approach to the conservation of biodiversity and the maintenance of carbon stocks.

The **goal** of the four year, \$5.0 million Biodiversity and Fragile Ecosystems Conservation and Management Activity (BIOFOR) is to protect biological diversity and forests and to mitigate climate change. The Activity's **purpose** is to improve the management of Peru's biodiversity and carbon stocks.

BIOFOR is supportive of existing SO4 Intermediate Results (IR). However, there is justification and a strong recommendation (see Annex K) to create a new SO2 level performance indicator, one focused specifically on the amelioration of global climate change, at the strategic-objective level. Wording of this indicator along with targets will be finalized during the first three months of implementation.

Proposed policy assistance interventions are grouped under three areas: developing a common awareness of Peru's biodiversity strategy and natural resource use planning; strengthening Peru's Protected Natural Area System (SINANPE); and natural forest policies that help Peru meet International Tropical Timber Agreement (ITTA) standards.

Specific policy assistance interventions will be defined during implementation with appropriate GoP agencies. These could include: 1) developing economic valuation criteria for biodiversity including a methodology to incorporate environmental and social costs and benefits in biodiversity and forest resource valuation that considers carbon sequestration; 2) promoting strong incentives for biodiversity conservation and sustainable use; 3) assistance in developing regulations for recent environment and natural resources (ENR) legislation; 4) identifying and addressing disincentives and institutional impediments to sustainable forestry; and 5) supporting the establishment of forest certification standards and monitoring mechanisms.

Site-based interventions will be carried out in up to six local areas selected in the design process on the basis of criteria (filters) described in Annex L. Three of these sites, for which relatively low levels of effort are anticipated, were included for their ecosystem representivity and potential for complementing other priority USAID and GoP programs. These are 1) the Ica coast, including the Paracas National Reserve and the Punta San Juan de Marcona Reserved Zone, where the LAC Bureau is considering inclusion of the Paracas National Reserve in its Parks in Peril program; 2) the Pacaya-Samiria National Reserve, where the ENRS Project was carried out and limited follow-on interventions and monitoring are considered appropriate; and 3) the Tingo María area, including the Tingo María National Park, which are National Institute for Natural Resources (INRENA) and Mission SO5 priorities.

Somewhat greater level of effort will be directed at the other three sites: 4) Madre de Dios, including the Bahuaja-Sonene National Park (BSNP), the Tambopata-Candamo Reserved Zone (TCRZ), and gold mining and indigenous territories to the West of the Inambari River; 5) Huascarán, including the Husacarán National Park and Biosphere Reserve (HBS), the Callejón de Huaylas, and the Callejón de Conchucos; and 6) Río Abiseo, including the Río Abiseo National Park (RANP), the Mariscal Cáceres National Forest (MCNF), and adjacent areas.

The site based interventions will include: 1) sustainable natural resource use planning in key geographic areas through area-specific ecological-economic zoning (EEZ), where possible through CONAM's new Regional Multisectoral Technical Committees (CTMR); 2) grants to support local initiatives for pilot experiences in sustainable natural resource management that have potential for replication elsewhere; and 3) training in strategic and financial planning and management and the development of stakeholder synergies to strengthen regional and local capacity to conserve and sustainably manage biodiversity and forest resources.

The policy assistance and site-based interventions are intentionally designed to reinforce each other. Policy reform proposed at the national level will be tested at the regional and local levels through local government, local management committees, community-based organizations, non governmental organizations (NGO) and community-based organizations (CBO) working in tropical forests, protected areas, and fragile ecosystems. Likewise, best practices and lessons learned from the preparation and implementation of pilot resource management plans and testing of appropriate technologies will support the refinement and modification of policies.

These proposed interventions will support on-going biodiversity conservation initiatives that are compatible with the strategies of GoP institutions such as CONAM, INRENA, the National Oceanic Institute (IMARPE), the Research Institute for the Peruvian Amazon (IIAP) and the Congressional Committee on the Environment, Ecology and the Amazon Basin, as well as those of the local communities and other stakeholders. Where jungle indigenous peoples are involved, this Activity will coordinate its interventions with the Office of Indigenous Peoples (OIP) of the Ministry for the Promotion of Women and Human Development (PROMUDEH) and the Special Project on Indigenous Peoples of the Ombudsman's Office. Potential regional and local partners, grant recipients, and collaborators have been identified through personal interviews and six participatory workshops held during the preparation of the design. The suggested partners will form part of the customer service plan that will be refined during Activity start up.

The proposed obligation mechanism for BIOFOR is an IQC Task Order to the Global Bureau's Environmental Policy and Institutional Strengthening (EPIQ) IQC, the only appropriate vehicle of this type that is currently available. EPIQ and local partners will administer all Activity funds except those retained for USAID/Peru for Mission Activity Management, provide management training and institutional strengthening to the local institutions that implement site-based activities, implement a competitive grants program for site based interventions and provide the Activity's principal technical orientation. EPIQ will also finalize and track an Activity results framework. Specific collaborative arrangements with GoP agencies will be through memoranda of understanding (MoU) and/or Limited Scope Grant Agreements (LSGA), which will define specific policy assistance interventions and priorities for site-based interventions. USAID will continue to explore the possibility of signing an overall bilateral agreement with the GoP after implementation begins.

The total cost of BIOFOR is estimated at \$5.0 million from USAID Development Assistance funds. The funding will be incremental. The first obligation in the amount of \$960,000 will be made in FY 1998. Since there will be no bilateral agreement, at least initially, there is no requirement for a counterpart contribution. However, Peruvian public and private entities will provide substantial in-kind contributions in the way of staff time and facility usage. In addition, it is estimated that BIOFOR will leverage approximately \$360,000 from the Global Bureau's Parks in Peril Program for joint interventions in Paracas and some additional funds from SO5 in support of site interventions at Tingo Maria and perhaps other coca areas. Finally, with the institutional strengthening from BIOFOR training and site interventions, local NGOs and CBOs will be well positioned to receive grants for complementary biodiversity activities under the Enterprise for the Americas Fund or funds made available through the Tropical Forest Conservation Act.

The expected results from this four year Activity are: (a) development and implementation of selected policies to strengthen the conservation of Peru's biological diversity and protect carbon stocks, (b) improved management at up to six threatened ecosystems as measured by a modified version of the protected area matrix, (c) improved management of Peru's forests, especially in the Amazon Basin, and (d) strengthened local and national institutions engaged in the conservation and management of biological diversity and fragile ecosystems.

BIOFOR fully supports GOP and USAID environmental strategies. The institutional, technical (threats analysis), socio-economic, gender and policy analyses have assessed the Biodiversity and Fragile Ecosystems Conservation and Management Activity as feasible. The socio-economic analysis has determined that BIOFOR represents a good investment of scarce resources. An IEE (Annex B) has been approved by the LAC Bureau Environmental Officer.

1. Forest and Biodiversity Conservation in Peru: Opportunity and Problem

1.1 Background

USAID/Peru is in an unusually good position to address the important challenge of conserving Peru's forests and biological diversity. It has a decades-long history of support to sustainable agriculture and natural resource management with important lessons learned.

During the 1980s the Central Selva Resource Management Project in the Palcazu Valley of Pasco Department put into practice an important test of a natural forest management plan in seven Yanesha Indian communities and provided extensive training to the participants. That Project also achieved the establishment of the Yanachaga-Chemillen National Park, The San Matías-San Carlos Protection Forest, and the Yanesha Communal Reserve, the first time that different permanent protection categories were combined in the same area in Peru to address different kinds of uses. Appropriate land use planning and extension were the principal strategies in that project.

More recently, 1992-97, the Employment and Natural Resource Sustainability (ENRS) Project, (No. 527-0341) carried out by The Nature Conservancy and its local counterpart, ProNaturaleza, involved local communities in natural resource use planning and income generation through sustainable economic activities. Additionally, in 1993-95, the Mission supported a project with the Madre de Dios Agrarian Federation (FADEMAD) for Participatory Land Use Classification and Sustainable Economic Development in Human-Impacted Areas of the Tambopata-Candamo Reserved Zone (Project No. 598-0780) and provided additional support to the same protected area through Conservation International.

In 1995 the Mission approved its Environmental Strategy,¹ which proposed a greater balance between urban-industrial, or "brown," areas of intervention and "green" ones, in rural environments including biological diversity and forests. This strategy identified 28 problem area constraints in seven main groups that included unsustainable agricultural practices, deforestation, the threat of biodiversity loss, the degradation of water and coastal resources, and an inadequate legal, regulatory, policy, and normative environmental framework, as well as others more related to urban-industrial concerns.

To prioritize USAID/Peru interventions, the Strategy applied the filters of severity of problem and need, Mission comparative advantage, targets of opportunity, and potential impacts. As a result, it rated among its highest priorities ENR (SO4) interventions addressing inadequate incentives in the forest sector, pressures on protected areas and production forests, the subordination of protected areas to industrial interests, protected areas management, the inappropriate legal and regulatory framework, divided environmental authority among Ministerial sectors, weak environmental institutions, and the lack of public participation and access to information.

The Sustainable Environment and Natural Resource Management Project (SENREM), Project No 527-0368 approved the same year, used this Strategy to prioritize its interventions, while seeking to redress the green-brown imbalance in the Mission portfolio, giving greater emphasis to urban-industrial interventions than to biodiversity and forest management ones. At that time the ENRS Project was still active and focusing on biodiversity conservation. ENRS was complemented by the LAC Bureau Parks in Peril (PiP) program activities in two Peruvian sites, the Pampas del Heath National Sanctuary, now a part of the Bahuaja-Sonene National Park (BSNP) and the Yanachaga-Chemillen National Park. ENRS and interventions in the Tambopata-Candamo Reserved Zone (TCRZ) and adjacent BSNP have concluded.

In September 1997, the Mission included a fourth component in SENREM addressing biodiversity, as seed support for the new biodiversity and forest conservation Activity herein proposed. That component, known in the Mission as BIOCOM, is underway with pilot activities planned to improve management in the SINANPE, Peru's System of Protected Natural Areas, assist in conflict resolution and other interventions in the Paracas National Reserve (PNR). Moreover, a number of the pilot interventions approved this year under SENREM address rural natural resource management issues in a manner that will complement this Activity.

1.2 The Development Challenge: Addressing the Threats to Forests and Biodiversity

By any standard, Peru's endowment of environmental wealth is impressive. Under the Holdridge classification, 84 of the world's 117 life zones are present in Peru. These include an unusually diverse array of threatened moist tropical forest, mountain, and marine ecosystems. Only four developing nations have more extensive natural forests than does Peru (67 million hectares). These are Brazil (546 million hectares), the Democratic Republic of the Congo (113 million hectares), Indonesia (104 million hectares), and China (100 million hectares).

Peru's forests harbor an astonishingly diverse array of flora and fauna. There are 1,538 known bird species in Peru, of which 109 are endemic. The only nation with a larger number is Colombia, with 1,595, of which only 63 are endemic. Plant life is comparably varied, with 17,121 flowering species having been identified in the country, of which 5,356 are endemic.²

Deforestation averages 0.3 percent per annum since 1980, and in 1990 totaled 6,948,237 hectares, or 9.2 percent of the original forest cover.³ Although that situation is less severe than in some of the other Amazon Basin countries, the cost of containing Peru's lesser cumulative deforestation will be substantially less than in countries where cumulative deforestation is more advanced. Moreover, accelerated forest loss is all but certain if there is a resumption of road construction in eastern Peru, such as that which in previous years allowed agricultural colonists and other agents of deforestation to migrate east of the Andes.

Any road building that accompanies petroleum and mining development in the Peruvian Amazon is sure to result in more settlement and habitat destruction. Cattle ranching, promoted by the Banco Agrario from the 1960s through the early 1990s, has been another source of deforestation in lowland eastern Peru. Placer gold mining now uses heavy equipment in procedures that lead to vastly increased deforestation and erosion. Large-scale timber extraction also has deleterious environmental impacts when not carefully managed. Plans for such extraction have been advancing for years and currently focus on several tracts, including one of nearly 700,000 hectares in Biabo-Cordillera Azul National Forest in the Departments of Loreto and Ucayali and other proposals for privatization of Peru's national forests.

As currently practiced, farming, ranching, gold mining, and logging amount, in large measure, to ecosystem mining, in the sense that renewable resource depletion results from those same activities. Habitat destruction from deforestation and the burning of forest cover contribute to accelerated global warming, because carbon formerly sequestered in living plants is released as carbon dioxide, a greenhouse gas, into the atmosphere.

Ecosystem mining also leads to biodiversity loss. Although tropical deforestation has not reached an advanced cumulative stage in Peru, species extinction is already a danger. In terms of threatened bird species, for example, Peru (64) ranks fifth, along with Colombia, on the global list, behind Indonesia (104), Brazil (103), China (90), and the Philippines (86). Within South America, only Brazil (463) has more threatened flowering plants than Peru (377) does.

Habitat loss and species extinction will foreclose the opportunities that Peru is currently counting on to harness biodiversity for the sake of socioeconomic progress, through the harvesting of non-timber forest products, biotechnology development, and ecotourism. Climate change, including El Niño events that are more frequent and intense, have had an impact on flora, fauna, and other renewable resources. For example, the Casa de Guías in Huaraz, a non-governmental environmental organization, has reported that the snow level, which normally reaches down to 4,800 meters above sea level, has retreated above 5,500 m, thereby exposing large areas to erosion. Impacts such as these need to be addressed by a long-term biodiversity strategy.

The threats to biodiversity are grouped in two categories, policy threats and site specific threats to protected areas. These are analyzed and summarized in greater detail in Attachment A.

Environmental authority is divided and placed at the level of sectoral Ministries. The Environmental Code, Legislative Decree No. 613, approved in 1990 established many of the environmental obligations that apply today, but the authority called for in that Code was placed at the Ministerial level in 1991 (Legislative Decree 757). The Ministries of Energy and Mines (MEM); Industry, Tourism, National Integration and Domestic Trade (MITINCI); Transportation, Communication, and Housing (MTC) establish the limitations and other responsibilities for pollution prevention and control in their sectors. Forest management and production are the responsibility of the Ministry of Agriculture (MAG); both MAG and the Ministry of Fisheries (MINPE) have responsibility for the conservation of biological diversity.

The concept of biological diversity and forest shared by most policy makers is that of resources that are not used but could be, not as useful resources in place, whose economic value has not been quantitatively calculated. Although timber values are considered, the same does not apply to watershed protection and the food, firewood, medicinal and other health services provided by standing forests and used for subsistence by local communities, nor even to non-timber forest products, wildlife, tropical fish, or tourism, since commercial exploitation of these activities has not been great in recent years on a national level.

Laws and regulations reflect the sectoral cleavages and acute centralization of authority and the lack of participation of the local population in the management of protected areas. As a result, land and resource use are unsustainable, mining and hydrocarbon exploration is permitted in protected areas, biosafety measures are lacking, tourism expands unplanned, and deforestation continues to contribute to biodiversity loss.

A prime example of discriminatory public policy is the prohibition on new timber harvesting contracts, effected by the promulgation of Supreme Decree 51-AG-92 on 24 December 1992 which suspended new contracts while allowing existing ones to be extended indefinitely in practice. Granted, contracts issued prior to the decree were far from perfect. However, the prohibition has caused logging to be characterized by legal informality, outright law breaking, and corruption, all to the detriment of the environment. For example, terminal dates of contracts signed before the end of 1992 have been extended, and maximum volumes to be harvested have been increased, quite often as a result of favoritism or even bribery. Obviously, changes of this sort do nothing to strengthen conservation incentives, which have been vitiated by Supreme Decree 51.

Another consequence of the prohibition on new contracts has been to make the wood products industry much more dependent on raw material extracted along expanding agricultural frontiers. MAG continues to issue Agricultural Use Permits to small farmers and ranchers settling in the Amazon Basin who clear land to extract timber.

The balance of timber demand is met, for the most part, from small timber concessions. Firms and individuals holding these parcels, which can and are being renewed by the DGF, are under no obligation to apply management plans. Moreover, there is reason to believe that much of the timber approved for harvesting from the small concessions is actually extracted from other people's land, and even from parks and other officially protected areas.

Because of laws like Supreme Decree 51 and the GoP's failure to date to approve a new Forestry Law, a policy vacuum currently exists in Peru's forestry sector. That vacuum is compounded by other legal and regulatory arrangements. One such arrangement is the ban on any form of logging in selected watersheds, which is regularly violated with impunity. Also, the rule against dimensioning planks with chainsaws, which is standard operating procedure in remote logging sites, is nearly impossible to enforce and serves no useful purpose. The waste of wood, which that rule is intended to curb, continues unabated since mills are buying large numbers of planks that have been cut and shaped with chainsaws and resawing them with bandsaws, which results in even greater wood loss.

The most appropriate response to these threats is participatory planning for improvements in the management of biological diversity and forests, combined with efforts to generate economic alternatives for local communities living in and near protected areas. This Activity will promote both policy reforms and site-based interventions as outlined in the strategic approach.

2. Activity Rationale

This Activity, Biodiversity and Fragile Ecosystems Conservation and Management in Peru, will result in:

- The development and improved implementation of selected government policies to strengthen the conservation and improved management of Peru's biological diversity and to protect carbon stocks;
- Improved management of up to six protected areas, as measured by a modified version (Annex L) of the protected area matrix prepared under BIOCOM);
- Improved management of Peru's forests, especially in the Amazon Basin; and
- Strengthened local and national institutions engaged in the conservation and management of biological diversity and fragile ecosystems.

As discussed in Annex I, BIOFOR incorporates gender as an integrated component of both the policy assistance and site-based interventions. This approach, inspired by the Peruvian Program on Ecosystems and Resource Management with a Gender Emphasis (MERGE), promotes community participation and the relevance of gender for successful conservation of natural resources and the importance of training for the sustainability of conservation interventions. As one consequence, the effects on women of the different policies addressed by this Activity will be specifically evaluated. In addition, the involvement of women and overall attention to gender issues will be one criteria used to select recipients of the site intervention grants. Women groups and organizations with a preponderance of women members will be actively solicited for expressions of interest in the competitive grants program. Training courses, both at the national and the site level, will be designed to take into account any particular learning needs occasioned by gender. Women participants in training programs will be actively sought.

There will also be a focus on the rights and interests of indigenous peoples. Many of Peru's protected areas are populated by the original inhabitants of the Western hemisphere who have survived only in marginal lands, remote from the institutions and pressures of national society. These same marginal lands often are also forested habitats for important biologically diverse species. Both the Madre de Dios and Pacaya-Samiria areas of site-intervention for this Activity include important indigenous populations. This Activity will direct special attention to their rights and interests and ensure their inclusion in Activity planning and benefits.

BIOFOR supports Agency Goal 4, "Environment managed for long-term sustainability," as well as three of its Agency Objectives:

- "Biological diversity conserved;"
- "Global climate change threat reduced;" and
- "Sustainable natural resource management."

2.1 Mission Environmental Strategy

The strategy for USAID/Peru assistance in environmental and natural resource management focuses on the environment in the context of present rapidly changing political and economic realities in both Peru and the United States². The constraints to improved environmental and natural resource management have been used as the basis for determining priority investments in the medium term. The Mission Environmental Strategy assumes three strategic approaches:

- improved legal, policy, regulatory, and normative framework;
- pollution prevention; and
- protection and rational use of fragile ecosystems.

A portfolio of short-term investments in policy dialogue, technical assistance, technology transfer, and targeted pilot projects is being implemented as the Mission moves toward a medium-term, balanced green-brown agenda. The goal is sustainable growth that enhances the capacity of the whole Peruvian society to improve its quality of life without compromising the rights of future generations.

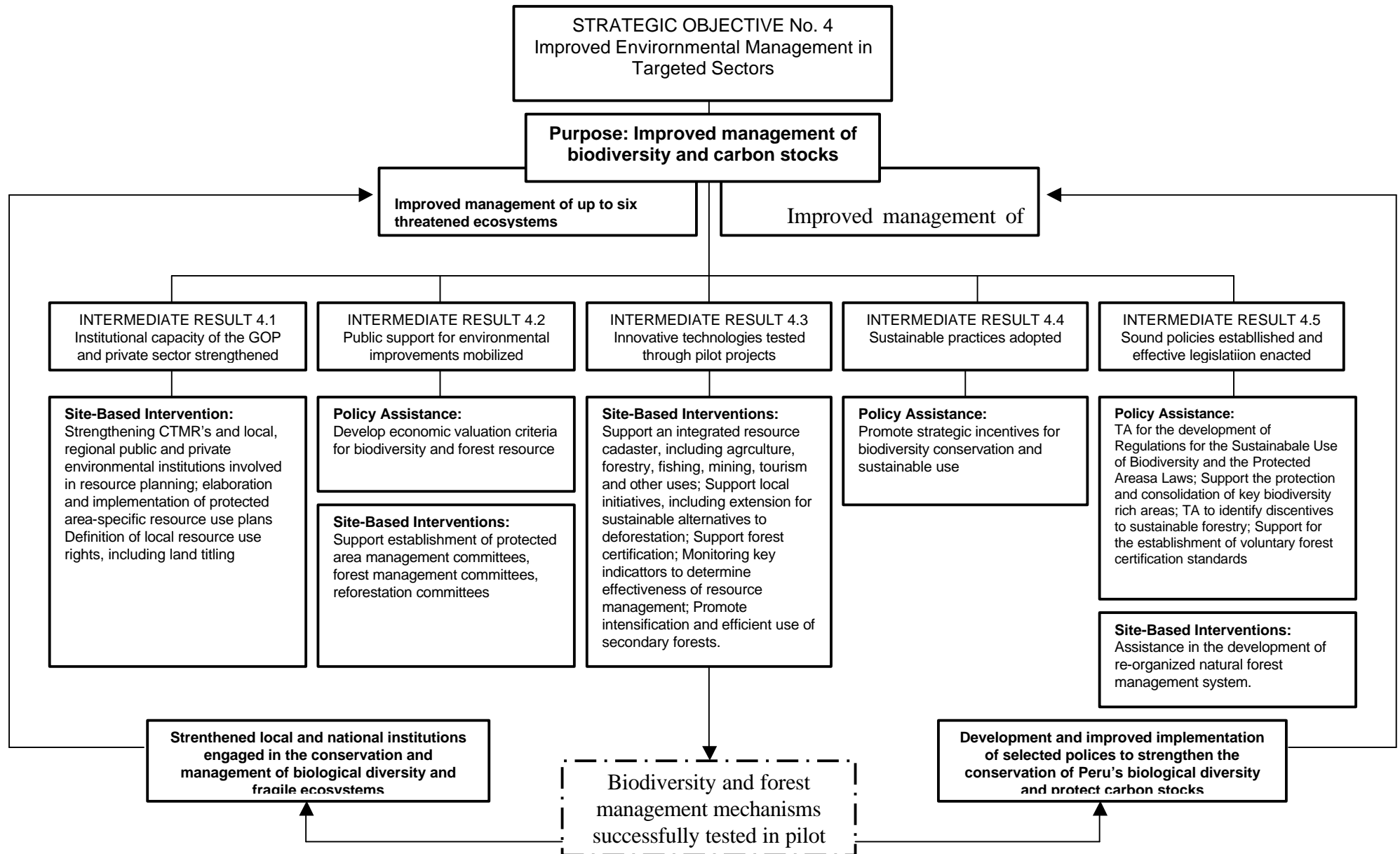
The interventions proposed under BIOFOR support the first and third strategic approaches of the Mission's environmental strategy. Furthermore, this Activity will work with SENREM in areas of common interest such as establishing an adequate legal, regulatory, and policy framework; expanding public awareness; strengthening private sector advocacy groups; and promoting pilot projects in green areas.

Within the Mission's Strategic Framework, the Activity supports SO4, "Improved Environmental Management in Targeted Sectors," with interventions addressed not only to forestry and biodiversity conservation, but also toward coordination among all interested stakeholders, including those in the agriculture, fisheries, hydrocarbons, mining, and tourism, in improved integrated management. The strategic approach that follows supports the five IRs of SO4 as illustrated in Figure 1.

In support of IR1, "Institutional capacity of the GoP and private sector strengthened," this Activity will seek to render those institutions having environmental authority and responsibility more efficient and responsive to local communities and other stakeholders and their collective needs. It will also provide training to local institutions engaged in site-specific biodiversity and forest conservation and management to strengthen their capabilities for strategic planning, financial and program management, and stakeholder synergy building.

In support of IR2 "Public Support for Environmental Improvements Mobilized," direct involvement of all interested parties in local planning and natural resource use in their areas, including grants to local institutions for this purpose, will contribute to their ownership of the environmental improvements to be attained and their support for the environmental policies that underlay such improvements.

Figure 1. Biodiversity and Fragile Ecosystems Conservatin and Management in Peru



Pilot projects will be supported with grants to local institutions for pilot experiences in the sustainable use of forests and biological diversity, as well as natural resource use planning, thus directly supporting IR3, "Innovative Technologies Tested through Pilot Projects." These pilot interventions will be selected where there are possibilities for replication of the experiences elsewhere, thus contributing to IR4 "Cost-effective Sustainable Practices Adopted."

The policy assistance interventions contemplated in this Activity will directly contribute to IR5, "Sound Policies Established and Effective Legislation Enacted."

There will also be important linkages with other Mission SOs, and SOs of the Global and LAC Bureaus and close coordination with other donors and private sector institutions.

Policy deficiencies reflect the marginalization of rural populations. This Activity will emphasize citizen participation, particularly of rural local communities, in natural resource use planning in a manner that will stimulate democratic practices and address their marginalization. Local governments will also be involved directly. Thus, it will support SO1 objectives.

The lack of adequate income increases the need of impoverished rural peoples to obtain food, firewood, housing materials, and medicines from forests and to clear forests containing biological diversity for agricultural use. The alternatives for forest management to be promoted in site-based interventions should mitigate those pressures and generate income in support of SO2. NGOs and CBOs participating in this Activity will require training in strategic planning and resource management, as well as financial management. These entities will also benefit from the experience of the PVO Support Project and may utilize the services of that program directly.

Forest conservation interventions will help prevent soil compaction and standing water that further the spread of emerging and re-emerging vector-borne diseases. Land use planning will address local community needs, including health, and favor the maintenance of shade and other useful plants, many of which have pharmaceutical properties.⁴ Unchecked population growth in rural areas increases the threat of deforestation and biodiversity loss. Thus, there will be linkage with SO3 through interventions that will, directly or indirectly, encourage people to take necessary preventive, promotive, and curative actions to ensure healthy families in some of the priority areas for SO3's VIGIA, 2000, and ReproSalud activities (Loreto, San Martín, Callejón de Conchucos, and Ica).

Tingo María, one of the proposed sites, is in a priority area for SO5's Alternative Development (AD) Activity. Joint intervention is proposed there. The proposed Río Abiseo and BSNP areas, are Contradrogas areas, although not AD priorities. Coordination with both AD and the Local Governments Project is proposed for these two areas.

One of the areas proposed for site-based interventions, Madre de Dios, includes a PiP site, and another, Paracas, has been proposed for inclusion as a PiP site. On the basis of coordination with both the Global and LAC Bureaus, this Activity proposes the development of a joint work plan with the PiP partners in Paracas, The Nature Conservancy (TNC) with its local counterpart, ProNaturaleza, and the provision of a Mission match to the LAC resources that may be committed to the LAC Cooperative Agreement with those partners. Parts of this match are already programmed, including one new SENREM pilot project and BIOCOM interventions.

Moreover, the Activity supports CONAM's strategic objective for its Green Front (Frente Verde), which is "sustainable use of natural resources," including two specific CONAM goals:

- "Ecological-economic zoning," through the CTMR and other participatory processes in site-based interventions;
- "Participatory management in protected natural areas, of wildlife, and of ecotourism," through local protected area committees; and

The SO4 Team has already established systematic coordination with other donors and US PVOs involved in biodiversity and forest activities in Peru through a donor's committee that meets regularly. That coordination will increase during this Activity. Among the principal private sector industries that have expressed interest in cooperating with this Activity are Shell, Mobil, and Chevron, which are conducting hydrocarbons development in or near some of the likely sites. Coordination with other industries will be encouraged through this Activity.

3. Policy and Institutional Setting

Natural resource depletion in the Peruvian Amazon and other parts of the country has much to do with inappropriate policies and weak institutions. The near-absence of cohesive natural resource use planning is a clear manifestation of this problem.

There are three ways in which planning facilitates natural resource development that is economically efficient, environmentally stable, and socially broad-based and sound. The first is assessment of resource capabilities and uses. The second is identification of claims on resources made by government, private firms and individuals, and communities. Third, planning facilitates the resolution of environmental conflicts.

The importance of these three functions has been obscured in Peru because of recent experience with command-and-control regulations and other market-distorting interventions. This approach to public administration was applied when the country's public institutions were corporatist and when economic development strategies predicated on import-substituting industrialization were being pursued. Policy-induced distortions have had disastrous impacts, and any sort of planning, it seems, has come to be regarded with suspicion and therefore something to be neglected or even suppressed. Certainly, institutions responsible for natural resource use planning occupy a weak position in the public sector.

INRENA, of which the General Forestry Bureau (DGF) and the General Protected Areas and Wildlife Bureau (DGANPFS) are units, was created in 1990 as a part of the Ministry of Agriculture (MAG). But in January 1998, INRENA was transferred to the Office of the Presidency of the Council of Ministers (PCM), where CONAM has been since its creation in 1994. Presumably this change was intended to give environmental concerns a cross-sectoral focus, since the PCM serves to coordinate among different sectors and ministries. But just six months later, in June 1998, INRENA was placed back in MAG. None of this periodic organizational shuffling that confuses all concerned, has enhanced INRENA's ability to engage in effective natural resource use planning.

Aside from organizational arrangements that impede the systematic evaluation of natural resources and the efficient resolution of environmental conflicts, planning is hindered because governmental institutions are highly centralized and divided sharply along sectoral lines.

Acute centralization has long been a primary feature of the public sector in Peru. In response to calls for some measure of regional devolution, delegates to sub-national legislative assemblies, which were not to impinge on the national government's prerogatives, were chosen during the 1990 general election. However, even this modest initiative did not survive for long; the regional assemblies were disbanded when the constitution was suspended in April 1992. Governmental decision-making is now as concentrated in Lima as it has ever been.

Examples of sectoral cleavage abound. For example, protected area management is made difficult by poor coordination among the different MAG divisions that define agricultural policy and adjudicate land claims and INRENA bureaus themselves. Further fragmentation is found in the DGANPFS, the INRENA unit that manages protected areas, the Ministry of Energy and Mines (MEM), which awards concessions for mining and hydrocarbon exploration and development, and the Ministry of Fisheries (MINPE), the Ministry of Industry and Tourism (MITINCI), and the Ministry of Economy and Finance (MEF), which determines the country's economic policies. Also, environmental impact assessment is, by and large, a ministerial responsibility. This means that environmental concerns, especially those having to do with cross-sectoral spillovers, end up being dominated by sectoral development priorities, which often conflict with one another.

Steps have been taken to alleviate sectoral divisions and also to decentralize public institutions. In particular, CONAM is attempting to coordinate the actions of governmental agencies with sectoral responsibilities. Its national-level Multisectoral Technical Commission (CTM), in which the private sector, including NGOs, as well as ministries are represented, was established for the express purpose of sharing criteria for assessing cross-sectoral environmental impacts. Furthermore, fifteen Regional Multisectoral Technical Committees (CTMR), some for individual departments and others corresponding to two departments (e.g., Tumbes and Piura), are being put in place in various parts of the country. The latter committees are intended to provide all major groups that have a stake in natural resource development, including indigenous and peasant grass roots organizations and other segments of civil society, with a voice in natural resource planning.

To date, the impacts of establishing CONAM and its constituent entities have been limited. One reason for this is the general indifference toward planning mentioned above. A related cause of limited effectiveness is that, different from what one finds in other countries (e.g., Chile), the heads of key ministries, like MAG, MEM, MINPE, and MITINCI, do not actually serve on CONAM's governing council.

Certainly, anything that can be done to improve the economic content of existing planning initiatives is sure to be looked on favorably. Indeed, making use of economic criteria is probably the best way to convince doubters of the utility of planning since the current government, like any that may replace it, places considerable emphasis on the economic assessment of policy trade-offs. At the same time, participatory planning at the local level will help ensure that social and cultural needs are also satisfactorily addressed.

In practical terms, the contribution that economics can make to natural resource use planning is expressed well by a description of environmental and natural resource economics (ENRE) offered by David Pearce, of University College London. Professor Pearce stresses that ENRE involves both the demonstrations of environmental values, specifically including those to which no market transactions correspond, and the examination of public policies and other mechanisms for capturing non-market values.⁵

Both parts of ENRE analysis -- value demonstration as well as value capture -- clarify the challenge of conserving and sustainably developing biodiversity and forests in Peru.

3.1 Biodiversity Values

As is indicated above, Peru's biological resources are unusually heterogeneous. Translating biological diversity into financial income, however, turns out to be a considerable challenge. Moreover, natural resource use value, outside the market, is seldom taken into account in policy decisions.

Like many countries rich in flora and fauna, Peru is attempting to create the sort of institutional regime needed to internalize biodiversity resource values. The new Law of Conservation and Sustainable Exploitation of Biological Diversity, passed in 1997, mandates the development and adoption of National Biodiversity Strategy. Among other things, the new law calls for Peru to derive more value-added from its diverse biologic resources by increasing domestic production of goods and services made entirely or in part from indigenous flora and fauna. In a broad sense, promoting ecotourism in Amazonian forests, and animals in natural setting, is consistent with this policy. So is legal recognition of indigenous communities' traditional environmental knowledge.

3.2 Forestry Values

The difficulty of quantifying and internalizing biodiversity values helps to explain why individual economic agents are often not very interested in conserving forests and other habitats rich in flora and fauna.

Non-Market Carbon Sequestration Benefits. Other environmental services obtained from tree-covered land are under-valued in the marketplace, as well. This is certainly the case with carbon sequestration. Depending on the state of the forest prior to its destruction and also on the replacement land use, 100 to 200 metric tons of carbon are released for each tropical hectare that is deforested. Available research suggests that sea-level rise and other global warming damages amount to \$5 to \$10 per ton. This implies that the costs of global climatic change induced by deforestation range from \$500 to \$2,000 per hectare.³. If agents of deforestation were to internalize these costs (or if they internalized the benefits of carbon sequestration), their behavior would almost certainly be greatly altered.

Discriminatory Public Policy. However, deforestation also occurs in the Peruvian Amazon because existing public policies prevent households and firms from capturing the sorts of forest values to which market transactions ought to correspond. This is the essence of perverse incentives that, regrettably, are an essential feature of the current policy regime influencing the use and management of timber and non-timber forest resources in Peru.

Peru's current Forestry and Wildlife Law (Decree Law 21147), approved in 1975, has a strong focus on appropriate land use based upon soil quality climatic features. Considered groundbreaking and sophisticated at the time it was adopted, it is clearly inadequate 23 years later in a world of complex globalizing markets a very different political environment. The Environmental Code (Legislative Decree 613), approved in 1990, called for a new forestry law adapted to the Environmental Code framework; however, numerous attempts at proposed new forestry legislation have been frustrated since that time. There is evident need for forestry legislation and policies that adequately address human needs in a market context, as well as appropriate land use.

Largely because forestry institutions are as weak as they are, initiatives to change public policy have been sporadic, and in some respects misguided. Four proposals to update the 1975 Forestry Law have been introduced in the Peruvian Congress during the past year or so, and a single consolidated bill, having to do with forestry and wildlife, is being considered now. It is, however, a defective piece of legislation. For example, only concessions that take in more than 40,000 hectares are addressed by the bill. What, one must ask, is to become of the thousands of firms and households with small or medium concessions in the Peruvian Amazon?

Under-Utilization of Secondary Forests. Aside from how timber concessions are structured and distributed, two aspects of forestry development that have been neglected in the past now need to be given close attention. One of these is the utilization of secondary forests. The other area is the strengthening of local community organizations in order to enhance their involvement in sustainable forestry initiatives.

Antonio Brack-Egg, one of Peru's leading environmental and natural resource specialists, highlights the importance of intensified utilization of secondary forests. He points out that, out of 9 million hectares that have been colonized or otherwise deforested in the Peruvian Amazon, only 2 million hectares are actually being used for crop or livestock production. An equal amount of land is dedicated to production forestry. More than half of all deforested land east of the Andes -- 5 million hectares -- is abandoned and in a degraded state.⁶

Intensified management and harvesting of secondary timber could take the form of production of softwood species that grow rapidly, with output being used in domestic construction: concrete molds, doors, windows, etc. With time, international markets could even be tapped, as impediments to wood exports, like deficient transportation infrastructure, are removed.

The National Forestry Chamber (CNF), in which Peru's larger private logging and wood products companies are represented, is highly supportive of intensified development of secondary forests. CNF is participating in a five-year project funded by the Dutch government to manage forest regeneration in colonized areas near the highway leading to Pucallpa and to market timber produced in those areas. Another benefit of secondary forest management is that carbon is sequestered in trees and other natural vegetation, thereby slowing the accumulation of carbon dioxide and other greenhouse gases in the atmosphere.

Lack of Local Participation in Forestry Management. One of the stated objectives of the Dutch-CNF project is to benefit local populations. Widespread land abandonment (see above) is an unequivocal sign that, for them, agricultural colonization in the Peruvian Amazon has not been profitable. Low real estate values comprise another piece of evidence of meager net returns. The price at which any particular parcel is bought or sold reflects the discounted value of future earnings; in colonized areas, the value of untitled land, which is especially cheap, is not much more than 125 soles (approximately \$45) per hectare. The judgement made in the marketplace is that agricultural land clearing does not pay.

Even if timber growth is not particularly high and if stumpage values are modest, secondary forest management ought to be a financially attractive land use option for colonist households. Suppose, for example, that average annual growth is 5 cubic meters and that stumpage can be sold for \$5, which is probably below the prices that would emerge in fully competitive markets. Net annual returns, then, would be \$25. Assuming a real discount rate of 12.5 percent, the market price of tree-covered land that is fully titled would be \$200 (\$25 divided by 12.5 percent), which compares very favorably to agricultural land values.

The net returns to forestry, though, are more potential than real as far as most colonists are concerned. For them to benefit from the development of secondary forests is to strengthen their long-term access rights, so that trees growing under their care are not so easily extracted or burned by interlopers. Something else that is needed is the strengthening of local community organizations, so that they can enter into mutually advantageous joint ventures with private firms that have technical expertise and marketing capacity. To put it simply, sustainable development of secondary timber resources requires that environmental wealth, which is plentiful in the Peruvian Amazon, be complemented by social capital, which is exceedingly scarce in the region.

4. Activity Goal and Purpose

The **goal** of the proposed Activity is to protect biological diversity and forests and to mitigate climate change. The Activity's **purpose** is to improve the management of Peru's biodiversity and carbon stocks.

This activity supports achievement of existing Irs and under SO4. However, there are advantages to creating a new performance indicator, one focused specifically on the amelioration of global climate change, at the strategic-objective level. Those advantages are discussed in Annex J, contains a recommendation including a proposed indicator.

5. Activity Interventions

The Activity strategic approach described above has been transformed into a menu of specific policy assistance and site-based interventions with proposed performance indicators that will measure results in direct support of the IRs. These interventions are referential. Exactly what will be done will be defined more precisely according to the response from partners and the quality of their proposals to carry them out as well as their viability at the time they are to be undertaken.

They will support on-going initiatives for the conservation of biological diversity and forests that are compatible with the strategies of USAID/Peru and such GoP institutions as CONAM, INRENA, IMARPE, IIAP, and the Congressional Committee on the Environment, Ecology and Amazon Basin. They will also provide opportunities to strengthen CBOs, NGOs, protected area local management committees, producers' associations, mothers' clubs, and indigenous communities through targeted training to improve their capabilities in strategic planning, administrative and financial planning and management, program management and monitoring, natural resource use planning, and stakeholder synergy building. Pilot demonstrations, resource valuation studies, and the preparation of specific resource management plans will target specific threatened ecosystems where results can be replicated.

This strategic approach will support national biodiversity and climate change strategies and help Peru meet its obligations under the Convention on Biological Diversity (CBD) and the Framework Convention on Climate Change (FCCC). It will provide specific policy assistance in support of these national strategies and the institutional approaches of GoP institutions such as CONAM, INRENA, and the Congressional Committee on the Amazon and Environment, as well as local initiatives for site-based interventions for the conservation and management of biological diversity and forests. These interventions will have performance indicators that will measure results in direct support of SO4 IRs.

5.1 Policy Interventions

To support the development of a common awareness for the national biodiversity strategy and natural resource use planning, three kinds of policy assistance may be provided:

- Economic valuation criteria for biodiversity, including methodology to incorporate environmental and social costs and benefits in biodiversity and forest resource valuation, including carbon sequestration;
- Recommendations for stronger incentives for biodiversity conservation and sustainable use, including clearer definitions of access to genetic resources and development of Peru's biotechnology plan;
- Support for the Regulation of the Law for the Sustainable Use of Biodiversity.

To strengthen the National System of Natural Areas Protected by the State (SINANPE), two policy interventions may be provided:

- Technical assistance in support of Regulation of the Natural Protected Areas Law;
- Assistance in the establishment or consolidation of protection status in new key biodiversity-rich areas (e.g., border parks and corridors such as Gueppí/Yasuní/Cuyabeno, Serra do Divisor, and Bahuaja-Sonene/ Madidi/Manuripe);
- Assistance in the establishment of new communal reserves for the management by local communities of flora and fauna used for subsistence.

Natural forest policies consistent with the International Tropical Timber Agreement (ITTA) will be promoted by:

- Assistance in the development of a reorganized natural forest management system for sustainable production;
- Identifying disincentives and institutional impediments to sustainable forestry;
- Supporting the establishment of voluntary forest certification standards and monitoring mechanisms; and
- Providing PROMCEPRI with criteria for participatory planning of forest management in national forests to be privatized.

The policy assistance and site-based interventions, grouped under specific Irs are intentionally designed to reinforce each other. Policy reform and institutional strengthening interventions proposed at the national level will be tested at the regional and local levels through local governments, protected area local management committees, NGOs, and CBOs working in tropical forests, protected areas, and biodiversity-rich ecosystems. Likewise, best practices and lessons learned from the preparation and implementation of pilot resource management plans and testing of appropriate technologies will support refinement of policies and suggest new ones.

The precise policy assistance interventions will be defined in annual workplans with the principal partners. At that stage, it will be easier to determine where the best results may be obtained in support of mutual goals. Table 1 presents a preliminary listing of such potential interventions as discussed in coordination meetings and workshops with potential partners.

Table 1. Suggested Activity Interventions for Policy Assistance, Potential Partners, and Estimated Costs

Intervention	Potential Partners
Policy Assistance	
Short courses in economic valuation of natural resources, including methodology to incorporate environmental and social costs/benefits in forest and carbon sequestration valuation.	Consorcio Económico, UNALM
Assist CONAM in developing Regulations for the Law for the Sustainable Use of Biodiversity	CONAM
Assist in developing Regulations for the implementation of the Protected Areas Law	INRENA
Support the protection and consolidation of key biodiversity rich areas and promote communal reserves	INRENA
Provide technical assistance to identify disincentives to sustainable forestry	INRENA
Support the establishment of voluntary forest certification standards	INRENA, WWF/Peru
Contribute to participatory planning for management of privatized national forests	PROMCEPRI/INRENA

All of the policy interventions are explained in some detail in Annex I. However, one of these, “Economic Valuation Criteria” is a relatively new and important concept and therefore deserves some explanation. In discussions with representatives of CONAM and other governmental agencies, environmental organizations, and the private sector, the need to strengthen economic analyses of natural resource development options was repeatedly stressed. Although there are quite a few well-trained economists in the country, ENRE continues to be something of a novelty with very little research conducted to date. A critical first step toward conceptually sound valuation methodologies is to support empirical research by Peruvian economic researchers. In particular, funding and limited and external technical assistance should be provided for three quantitative studies, all of direct relevance to the locations where site-based interventions will occur.

High priorities for funded research are the valuation of household consumption of non-timber products in and around a specific national park and the estimation of carbon storage and soil conservation benefits of forest protection in a particular watershed. While this is a policy intervention, researchers for these analyses should be selected through a small grants competition similar to that proposed for the site intervention.

Techniques employed and findings obtained in the three studies should be used as core material, along with general conceptual readings, in two week ENRE courses for representatives of agencies like CONAM and INRENA, a professionals employed by or associated with other environmental organizations and professors from Lima's leading universities.

5.2 Site-Based Interventions

To support sustainable land use planning and stakeholder synergy building in key geographical areas by:

- Strengthening CTMR's another participatory environmental planning committees;
- Assisting in the definition of local resource use rights, including land titling, at critical points;
- Supporting an integrated resource cadaster in one pilot site, including agriculture, forestry, fishing, oil and gas development, mining, tourism, and other uses;
- Supporting local initiatives, including targeted extension work, for sustainable alternatives to deforestation and exploitation of fragile ecosystems;
- Monitoring key indicators to determine the effectiveness of resource management;
- Supporting follow-up activities to consolidate opportunities and address threats.

To strengthen regional and local capacity to conserve and sustainably manage biological diversity and forest resources by:

- Supporting the establishment and consolidation of protected area local management committees, forest management committees, and reforestation committees, in accordance with the Protected Areas Law and forestry legislation;
- Facilitate the participatory elaboration and implementation of protected area-specific resource use plans.

To facilitate the preparation of an efficient forest management plan in one area by:

- Promoting the intensification and efficient use of secondary forests;
- Supporting forest certification awareness and training.

Site-based interventions will be selected on the basis of both coordination with the principal partners and approvals for competitively awarded grants on the basis of proposals that best respond to Activity results needs. The sites themselves will total at least four and not exceed six from the areas given priority during the design assessment. The criteria employed combine a matrix developed for the Mission by Pedro Vásquez⁷ of the Conservation Data Center (CDC) with other considerations of importance to the Mission.

The Vásquez matrix weighs biological representatively, size, organizational level, external financial and technical support, and data availability for 14 protected areas. In this analysis, 11 of these areas plus Tingo María National Park, of interest to both SO5 and INRENA, and the Pantanos de Villa Reserved Zone, within the city of Lima, are considered and weighted scores given. To these scores, additional points are added to reflect linkages with other USAID interests and financial commitment to them. The last consideration is weighed positively when it shows potential for partnering to attain better joint results. In those cases where financial commitment is comprehensive and the evaluators considered that the likely interest of the cooperating agencies in establishing such partnerships was slight, little or no additional weight was given to the area.

Table 2. Potential Site-Based Interventions with Geographical Area, Potential Partners, and Estimated Costs

Geographic Area	Intervention	Potential Partners
Madre de Dios	Strengthen CTMR	IIAP, CONAM
Madre de Dios	Assist the Ecotourism Association to determine tourism carrying capacity and, based on those results, assist in the development of management plan for tourism	Ecotourism Association, ACSS
Puno and Madre de Dios	Facilitate territorial and natural resource planning along proposed road San Gaban-Puente Inambari including land titling, definition of resource user rights, and addressing the gold mining situation	CONAM, FADEMAD, Mobil, CI
Madre de Dios	Facilitate the preparation of an integrated resource cadaster including forestry, agriculture, fishing, mining, tourism, oil and gas development, and other uses	CONAM/IIAP/PETT, Mobil
BSNP, TCRZ	Develop protected area Master Plan	INRENA, CI, ProNaturaleza, NGOs, CBOs
Tingo Maria	Help demarcate TMNP; assist local peasants outside the demarcated TMNP to obtain land titles; and develop a resource use management plan	INRENA, INADE (PEAH), PETT, AD
Tingo Maria	Develop and promote economic alternatives to coca production in buffer zone providing targeted extension as appropriate	AD

Geographic Area	Intervention	Potential Partners
Paracas	Strengthen local committee and build stakeholder synergies; follow-on to SENREM activities	RNP, Local Committee.
Paracas, San Juan de Marcona	Monitor threatened marine flora and fauna (birds, penguins, sea mammals, whales, dolphins, kelp)	IMARPE, APECO, U Cayetano Heredia
Paracas	Facilitate the preparation of a coastal zone resource management plan	RMNP, IMARPE, Local Committee
Pacaya-Samiria	Monitoring of status of river turtles and caimans	IIAP
Pacaya-Samiria	Strengthen CECODES	ProNaturaleza
Pacaya-Samiria	Develop management plan for fish, riverine mammals	IIAP, ProNaturaleza
Huascarán	Support glacier monitoring to existing INRENA proposal	INRENA, TMI
Callejón de Huaylas,	Consolidate tourism management plan	INRENA, TMI
Callejón de Conchucos	Develop pasture intensification, improvement plan, reforestation with <i>Polylepis</i> spp.	TMI, local communities
Río Abiseo	Develop buffer zone management plan between RANP and Mariscal Cáceres National Forest	INRENA, APECO
Mariscal Cáceres National Forest	Facilitate the preparation of a forest management plan	INRENA, APECO
National	Support voluntary forest management certification	WWF/Peru

6. Definition of Success

There are two major results expected from this four-year activity:

- Improved management of up to six threatened ecosystems (Paracas, Pacay-Samiria, Tingo Maria, Madre de Dios, Huascarán and Rio Abiseo)
- Improved management of Peru's forests, especially in the Amazon Basin

These are also two lower level or intermediate results which will help achieve the overall results mentioned above.

- Strengthened local and national institutions engaged in the conservation and management of biological diversity and fragile ecosystem.
- Development and improved implementation of selected policies to strengthen the conservation of Peru's biological diversity and protect carbon stocks.

A major output of the Activity will be biodiversity and forest management mechanisms successfully tested in pilot areas.

Figure 2 provides a diagram of the results along with illustrative indicators. As indicated under the Activity's Monitoring, Evaluation and Audit Plan, during the first year of implementation, the implementation contractor will analyze and modify, as appropriate, the Results Framework and Performance Monitoring Plan in consultation with and for approval by USAID and its partners. In addition, since site-based interventions will be implemented through a competitive grants program, expected results will be reassessed and finalized once the grants are approved.

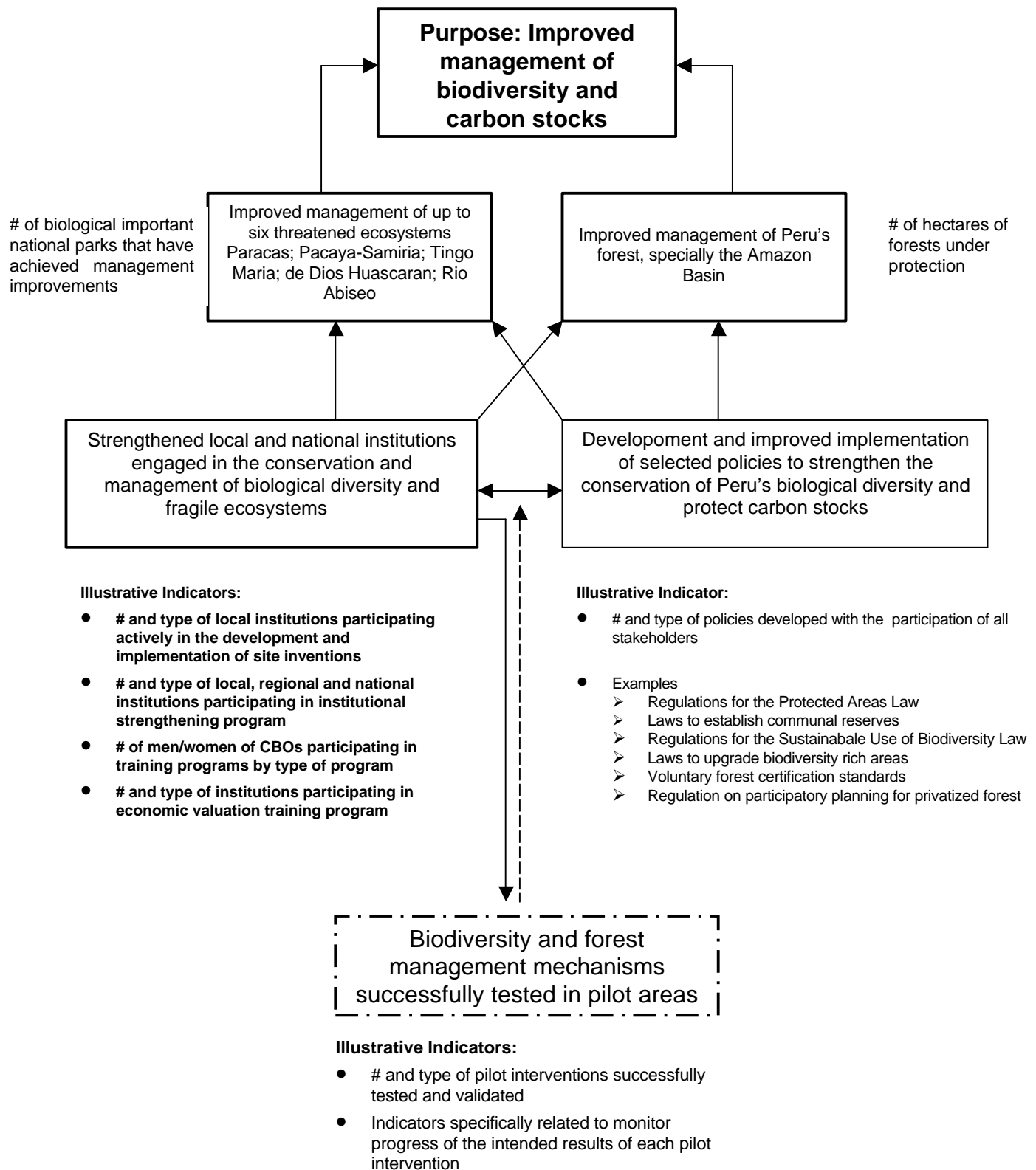
Beyond the results and indicators, another way of defining the success of this important Activity is through a compendium of policy and site specific changes that will have occurred in the conservation of Peru's biodiversity and forests by the end of the Activity in 2002.

Consistent with the Activity purpose and goal, a significant portion of Peru's biological diversity and forests will have increased population through improved management. In addition this increased protection will result in a decrease in the release of carbon thus reducing the disruptive effects of carbon on climate and the environment.

Regarding institution building, greater coordination of all stakeholders in forest and biodiversity conservation and natural resource planning will be occurring. In particular, stakeholders at the local level will have increased capabilities in these areas and will have shared experiences with similar institutions throughout the country. Stakeholders will also have improved planning, financial management, outreach capabilities and strengthened capabilities to build synergies.

By the end of the Activity, policies will have been drafted and/or strengthened and implemented in a range of areas relevant to forest and biodiversity conservation. Included are: economic valuation

Figure 2. Biodiversity and Fragile Ecosystems Conservation and Management in Peru



of natural resources developed and accepted; regulations developed and adopted for implementation of the Protected Areas Law and the Law for Sustainable Use of Biodiversity; the idea of communal forest reserves accepted; a re-organized natural forest management system for sustainable production adopted; and forest certification standards and monitoring mechanisms implemented.

At up to six sites around Peru, a number of biodiversity and forest management mechanisms will have been tested, adopted and in some cases replicated. In most cases these mechanisms will be directly supportive of adoption of the policy interventions mentioned above. These management interventions will have included:

- regional multisectoral technical committees strengthened;
- local resource use rights defined in selected sites;
- the development of multi-sectoral resource inventory tested at one site;
- key indicators of resource management monitored at selected sites;
- local committees involved in protected areas management;
- forest management and reforestation established and/or consolidated at selected sites;
- participatory development and implementation of protected area resource use plans facilities;
- intensified, efficient use of secondary forests promoted; and
- forest certification awareness and training programs completed.

7. Plan of Action

For this program to be effectively implemented and obtain the desired results, USAID/Peru needs to obligate funds to an agreement and also to contract or provide grants to commit its partners to specific interventions and budgets.

7.1 Activity Management

This Activity will be implemented in coordination with two major GoP agencies, INRENA and CONAM. It will also require lesser involvement with several others, including IMARPE, IIAP, the Office of Indigenous Peoples (OPI) of PROMUDEH, in addition to the Ministry of Foreign Relations and the Secretariat for International Cooperation (SECTI) of the Ministry of the Presidency, and several universities, as well as public and private local institutions.

An effective bilateral agreement or Strategic Objective Agreement (SOAG) under these conditions would be difficult at best, even under ideal circumstances. However, that situation is complicated by political delicacies both among GoP agencies and between them and the PVO, NGO and CBO communities. In the Concept Paper, a SOAG-like modification of the SENREM bilateral agreement with CONAM was proposed, with this Activity budgeted and reported on separately. CONAM has informed the Mission that it will not assume responsibility for interventions or functions that correspond to other agencies, such as INRENA, even though INRENA forms a part of CONAM's Board of Directors.

In June INRENA reverted to the Ministry of Agriculture from the Office of the Presidency of the Council of Ministers to which it was transferred in January 1998. In July 1998 INRENA's leadership changed, and the implications of that change for Activity success are still not unclear. It is unlikely, however, that INRENA could or would be willing to assume responsibility for interventions or functions that are clearly assigned to CONAM. A multi-partner bilateral agreement is possible but would be difficult to manage, given inter-institutional rivalries and the lack of a clear delimitation of authority in manner areas critical to this Activity.

Researchers, involved in the short-term research interventionists, should be selected through the sort of small grants competition that has been used in USAID's Biodiversity Support Program (BSP). They would be expected to exchange ideas, findings, and so forth in workshops held at the beginning, halfway through, and the end of the funding period. A senior ENRE specialist, presumably brought in from outside Peru, would serve as a facilitator at these workshops. Research findings and the empirical techniques applied would be reported in a monograph published within three months of the end of the funding period, and presented at a major conference in Lima.

Techniques employed and findings obtained in these empirical studies should also be used as core curricular material, along with general conceptual readings, in two-week short ENRE courses, organized in the national capital for representatives of agencies like CONAM and INRENA, professionals employed by or associated with environmental organizations, as well as professors from Lima's leading universities. A major purpose of these training sessions, which would be very similar to short courses held in other parts of the country (see below), would be to acquaint non-specialists with the contributions that economics can make to natural resource assessment, the resolution of environmental conflicts, choices among policy instruments (i.e., capture mechanisms), and other aspects of natural resource use planning. In particular, short course participants and the institutions they represent would learn how to frame questions to be addressed by ENRE analysis, would get acquainted in a general way how that analysis is conducted, and come to understand how to interpret and utilize the results of ENRE studies.

After the three research projects have been completed and presented in monograph and conference, short courses in ENRE will be provided for up to a dozen young Peruvian women and men.

A training program will be organized to strengthen the local institutions involved in this Activity (CBOs, NGOs, mothers' clubs, producers' associations, protected area local committees, local governments, etc.). This program will include basic considerations in strategic planning, financial planning and management, program planning and monitoring, and stakeholder synergy building. This will be done from resources included in the task order.

In planning for the grants competition for site-based interventions, the training program will request brief profiles of proposed interventions from all locally active institutions. On the basis of a preliminary selection from the profiles, the training institution will provide the locally active institutions with the necessary support to allow each of these local institutions to complete a full-blown proposal and meet the necessary requirements to receive USAID financial support.

A final selection of the grantee partners will be made by the IQC contractor, with full participation by USAID and the relevant GoP institutions, as well as other partners considered appropriate for this purpose. The IQC contractor will manage the grants awarded in this process and report to USAID/Peru.

Following selection for grants, the awardees will receive important institutional strengthening training to facilitate the management of these grants and render them eligible for financial support from other sources. The purpose of this training is to ensure program sustainability.

7.2 GoP Institutional Involvement

Direct GoP involvement in this Activity is essential to ensure its ownership of the policy changes and technical assistance contemplated. The GoP partners will be involved through memoranda of understanding (MoU). This mechanism is more flexible for more limited objectives and/or time periods. Moreover, there will be less reluctance on the part of the GoP counterparts to assume their responsibilities in this Activity, since the MoU will focus on areas of convergent objectives and will not hold the GoP agency accountable for actions implemented by other parties. Although the GoP agencies will not receive a concrete budget that they manage directly, they will receive technical assistance in support of their own institutional goals in areas where these coincide with USAID's and the Activity purpose. Some non-career staff may be added to these agencies to assume specific Activity-related functions as a part of the technical assistance provided under the EPIQ task order.

The principal MoU will be with CONAM and INRENA. All trans-sectoral and inter-institutional coordination's will be carried out in conjunction with CONAM. Direct protected area and forest management interventions will be coordination with INRENA through its DGANPFS and DGF, respectively.

IMARPE will be involved in research and monitoring of marine and riverine flora and fauna in the Paracas and Pacaya-Samiria areas. IIAP will be the principal GoP player in the coordination of site-based interventions in the CTMR established in Madre de Dios, Loreto, San Martín, and probably also Tingo María. INADE will play a major role in rural development planning coordination's in Tingo María. Planning for forest management interventions in Peru's national forests, now undergoing a process of concessions to private enterprise will be coordinated with PROMCEPRI, which has responsibility for these processes. PROMUDEH's OPI has responsibility for the defense of the rights and interests of indigenous peoples in those areas where they are present in the Amazon Basin. The Ombudsman's Office also has a Special Project for the Defense of Indigenous Peoples and may be involved in this Activity in some appropriate manner.

7.3 Regional and Local Partners

Potential regional and local partners grant recipients, and collaborators have been identified through personal interviews and participatory workshops (Diálogos) held during site visits by the EPIQ Assessment Team. Further details on the universities, GoP institutions, CBOs, NGOs, local government, women's organizations and native communities can be found in the Institutional Analysis (Attachment G). The suggested partners will form part of the customer service plan and is an illustrative list that should be carefully reviewed and refined during Activity startup. Specific collaborative relationships, whether by memorandum of understanding, subcontract, or grant, should be clearly defined during the preparation of the annual work plans.

For the research interventions, some of the major Peruvian universities and think tanks will be involved. These include the Catholic University, the University of San Marcos, the National Agrarian University at La Molina, the University of the Pacific, the San Antonio Abad University of Cusco, the University of the Peruvian Amazon, and the National Agrarian University of the Jungle, as well as the Consorcio Económico and the Group for Development Analysis (GRADE).

The World Wildlife Fund in Peru is currently conducting a small program for the implementation of voluntary forest management certification standards in areas of varzea forest of eastern Peru. This Activity could help expand that program and support its implementation in key sites. Additional support for forest management interventions could be obtained from The Forest Management Trust, which is working closely with Chemonics in the implementation of the USAID-funded BOLFOR activity in Bolivia.

For site-based interventions in the Paracas and Ica Coast areas, it will be necessary to prepare joint work plans with TNC and its local counterpart, ProNaturaleza, whose complementary interventions will be supported by PiP. Those interventions directly funded under this Activity will work with other institutions active in the area. One of these would be Peruvian Association for the Conservation of Nature (APECO), which is engaged in environmental education and, in coordination with IMARPE, species monitoring. Others could include the University of Ica, the Foundation for Agrarian Development (FDA) of the National Agrarian University at La Molina, the Peruvian Society for Environmental Law (SPDA), or the Paracas National Reserve local management committee itself.

Site-based interventions in the Huascarán, Callejón de Huaylas, Callejón de Conchucos area will be coordinated closely with The Mountain Institute (TMI), a West Virginia-based PVO that is currently carrying out activities there with support from a grant from the Global Bureau's Private Voluntary Cooperation Activity, should be a key partner in that area. The 12 NGOs that conform the Chavín Consortium in that area would be likely candidates for site intervention grants, as would the principal CBOs, women's organizations, farmers' associations, and tourism guides active in the area.

In Madre de Dios, a key player will be IIAP, which is coordinating the CTMR for CONAM there. Two major U. S. PVOs are active in the area. These include the Conservation International (CI), TNC. Other key NGOs active in the area include the Tambopata Reserve Society (TReeS), the EORI Center for Regional Research and Development, the Association for the Conservation of the Southern Jungle (ACSS), an Italian program of cooperation development, CESVI, the Center for Local Industrial Development (CIPDEL), the Agroecological Association, Wanamey, and CANDELA/Peru, an organization that promotes the marketing of Brazil nuts, with CI support.

The principal CBOs in Madre de Dios are the Madre de Dios Native Federation (FENAMAD), the Madre de Dios Departmental Agrarian Association (FADEMAD), the Timber Producers' Association, the Red Mujer, various other women's organizations, gold miners associations, and the Madre de Dios Association for Ecotourism

APECO is the principal organization active in the Río Abiseo area, although ProNaturaleza, with support from the WWF is also present, although principally on the western side of the RANP in La Libertad Department.

TNC and ProNaturaleza remain active in the Pacaya-Samiria area, employing their own resources since USAID-funding ceased. There is also a major WWF program there, supported with funding from the Danish Government. There are also several important Cocamilla and Cocama indigenous associations, fishermen's organizations, and other producers' groups, as well as women's organizations active there.

7.4 Donor Coordination

The Donor Coordination Committee, formed at USAID's initiative in 1996 and already involved in the selection of SENREM pilot projects, will be strengthened as an active participant in planning for this activity. This will be important, since there are a number of complementary programs for biological diversity and fragile ecosystems conservation and management in Peru, and this Activity would seek to avoid duplication of effort or working at cross purposes with these organizations and encourage mutual support among them.

8.0 Feasibility Analyses, Key Assumptions and Related Risks

The Initial Environmental Examination Threshold Decision is for a categorical exclusion for all interventions except for monitoring of flora and fauna, and forest management activities. A conditional negative determination was made for the monitoring interventions, and a conditional positive determination was made for the forest management activities. (See Annex A.) Since this is an environmental activity, every effort will be made to ensure improvement in environmental relationships and synergies.

The Threats Analysis (Annex E) demonstrates the need to address biodiversity loss and deforestation, which also involves habitat loss for biologically diverse species of flora and fauna. The same Analysis also shows the importance, as well as the feasibility, of intervening in the priority areas based on past USAID/Peru and GoP experience.

The Institutional Analysis (Annex F) clarifies which public and private institutions are present and active nationally and in each of the proposed areas of site intervention. This Analysis demonstrates the capabilities and limitations of both GoP and private sector institutions to carry out their respective functions.

In particular, this Analysis demonstrates the sectorization and centralization of the corresponding GoP institutions (CONAM and INRENA) and the difficulties they have in effective coordination across sectoral boundaries, as well as the limitations of regional and local participation. This Analysis makes clear recommendations to overcome these limitations, including key elements of the program of interventions proposed for the BIOFOR Activity. These involve a number of research, policy and training interventions.

It also makes clear the need to involve local and regional institutions more completely in planning and decision making for biodiversity and forest conservation and management. In addition, it points out the managerial limitations of these local institutions and the need for training of their staffs, with an emphasis on strategic planning, financial and program management, and stakeholder synergy building. These interventions are contemplated as a program component that should lead to greater program sustainability at Activity termination, when more local implementing agencies will have been strengthened and will have become competitive for the available resources to continue their work.

The Socio-Economic Analysis (Annex G) demonstrates the economic feasibility and desirability of the biodiversity and forest conservation and management interventions proposed for BIOFOR. This Analysis lays out the need for capturing value in biological diversity and forests in order to facilitate their sustainable use in the context of a market economy. It highlights the medium- and long-term benefits from carefully planning and managing the use of these resources, even though short-term costs will likely be higher for doing so.

The local populations in and near protected areas and other rural forested areas are shown to be very poor, marginalized and lacking in decision-making access and capabilities regarding their own futures. Their patterns of natural resource use are largely determined by external policies, interests, and institutions. For example, much of the deforestation that has occurred in recent decades, and which has destroyed habitats for diverse species of flora and fauna, has responded to centralized and sectorized credit and resource use tenure policies that have led to conflict and made sustainable use patterns impossible. Local people know that their natural resource patterns are unsustainable and even contrary to their own interests, but they have little freedom to opt for alternative, and potentially sustainable, natural resource use patterns.

At least two of the areas proposed for site-based interventions include indigenous populations. In a manner consistent with the International Labor Organization's Convention 169, these peoples will be consulted prior to assuming any Activity interventions in areas where they will be affected. Their territories will be respected and consolidated and their natural resource use tenure strengthened as clear Activity interventions. They will be favored in the selection of income-generating interventions supported in BIOFOR that will also diminish threats to biological diversity and forests.

The Gender Analysis (Annex H) addresses the importance of consciously involving women and their organizations in Activity planning and implementation decisions in order to overcome traditional and ingrained biases within the society. It emphasizes women's economic needs, including income, and the need to address these directly in Activity interventions, over identity concerns, which should also not be neglected.

The Policy Analysis (Annex I) addresses the history of errors in public and private planning for natural resource access and use. These errors result, for the most part, from excessive centralization, among institutions having responsibility for such planning, usually at a great distance from the scene of the problems. The market is seen as a useful mechanism for overcoming many of these limitations. It is powerful and may be harnessed effectively with careful, democratic planning. However, it is not a panacea nor even less an absolute alternative to carefully considered democratic, and decentralized planning. There are no easy solutions.

Thus, the BIOFOR strategy of directly involving local populations and their organizations in the planning and implementation of Activity interventions --decentralizing, integrating, and democratizing decision making and access to Activity resources-- is essential to obtaining the desired behavior change results. BIOFOR also proposes to give priority to building synergies among all stakeholders, rather than limit Activity responses to problem solving.

These innovative strategies seek to grant ownership of Activity interventions, decisions, and resources, more directly to the target populations and to focus on opportunities rather than constraints. They contrast with the more traditional USAID activities that channel resources and decisions through vertical, bureaucratized GoP agencies and USPVOs in a manner that allows very little to trickle down to the target populations or directly respond to their needs and interests. They also contrast with the traditional threat or problem orientation and will encourage bold new initiatives in order to appreciate and seize opportunities to mobilize constructive energies for common purposes of long-term environmental diversity and stability, together with social and political harmony and peace.

Such strategies necessarily involve risks. There is always the possibility that ill-trained local institution staffs may not respond in the ways USAID and its principal Activity partners intend, and the results may prove harder to attain than expected. GoP agencies and other traditional USAID partners, accustomed to greater control over resources and decision making, may resist and create obstacles. However, these risks may be calculated and addressed through highly participatory planning processes that involve all stakeholders and respond imaginatively and adequately to their interests, strong hands-on management by both USAID and its principal implementation partner, and effective technical assistance and training. These processes may become more important, and replicable, than the immediate results themselves.

Thus, the usual notions of appropriate management to program ratios may not be realistic in this context. BIOFOR was designed with the intention of breaking new ground by decentralizing, integrating, and democratizing decision making and access to resources, in the belief that approach will be more successful in attaining the intended results. If that assumption is correct, then the BIOFOR experience will be more easily replicated with much greater medium- to long-term return on the investment. Alternative approaches have failed, and the risks are worth taking.

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Annex A

Initial Environmental Examination with Threshold Decision

Initial Environmental Examination with Threshold Decision

The conservation of biodiversity and the mitigation of climate change are both high Agency priorities. Peru is one of the world's richest countries in biological diversity and forest resources. It is also a country where climate change mitigation efforts involving forest management can still be undertaken with significant medium-term results at a relatively lower cost than in countries where the resource degradation is more advanced.

To address these issues in a timely manner, this new five year activity will include a broad menu of interventions that will respond to threats to biodiversity conservation such as deforestation, lack of economic alternatives for sustainable economic activities in and around protected areas, an improper system of incentives and disincentives, unchecked advancing agricultural frontier and forest conversion to pasture and other unsustainable uses.

This activity involves:

- The development and improved implementation of selected government policies to strengthen the conservation and improved management of Peru's biological diversity and to protect carbon stocks;
- Improved management of three to five protected areas, as measured by a modified version of the protected area matrix prepared under the Biodiversity Component (BIOCOM) of USAID's Sustainable Environment and Natural Resource Management (SENREM) Project; and;
- Improved management of Peru's forests, especially in the Amazon Basin.

This Activity incorporates a gender approach as an integrated component of both the policy assistance and site-based interventions by promoting the strengthening of institutional capacity as well as support the participatory planning of key stakeholders. Specific interventions will reflect the conscious sensitivity to the needs of women as primary actors in the management of biological diversity and fragile ecosystems. Furthermore, incorporating gender will enhance equity within the development process. This approach promotes community participation, gender perspective and training in order to achieve sustainable results in resource management.

The interventions proposed under the Biodiversity and Fragile Ecosystems Conservation and Management Activity will support two of the three strategic approaches of the Mission's environmental strategy. Furthermore, this Activity will collaborate with the Sustainable Environmental and Natural Resources Management (SENREM) in areas of common interest such as establishing an adequate legal, regulatory, and policy framework; expanding public awareness and strengthening private sector advocacy groups, and promoting pilot projects in green areas.

Within the Mission's Strategic Framework, the Activity supports Strategic Objective 4 (improved environmental management in targeted sectors), particularly those related to biological diversity and climate change and all five Intermediate Results (IRs):

1. Institutional capacity of the GoP and private sector strengthened;
2. Public support for environmental improvements mobilized;
3. Innovative technologies tested through pilot projects;
4. Cost-effective sustainable practices adopted; and
5. Sound policies established and effective legislation enacted.

There will be two major areas of assistance under this initiative: (1) policy assistance and (2) site-based interventions. The policy assistance will address GoP and USAID/Peru priorities in the conservation of biodiversity and natural forest management. Site-based interventions will support policy initiatives by demonstrating in practice the utility of inconvenience of proposed policy changes. Other site-based interventions will test innovative alternatives for integrating local communities in the management of biological diversity and forests. Lessons learned will be publicized and replicated where appropriate. No infrastructure improvements such as construction of guard posts or road repair or construction is anticipated.

This IEE will evaluate the potential environmental impacts of activities under specific Intermediate Results (IRs) which support USAID/Peru's SO4 - Improved environmental management in targeted sectors.

1. IR 4.1 Institutional Capacity of GoP and Private Sector Strengthened

Proposed site-based interventions that support this IR will strengthen local public and private institutions including regional environmental committees, Regional Multi sectoral Technical Committees (RMTCs), and other participatory mechanisms involved in resource planning and biodiversity conservation. Specific interventions proposed include strengthening of the RMTC; establishing the local management committee for Bahuaja-Sonene and TCRZ; providing intensive training in strategic planning and financial management to local NGOs, mothers clubs, producer associations; and facilitating a study to determine tourism carrying capacity and the development of a tourism management plan.

Additional interventions proposed to support this IR will facilitate territorial and natural resource planning including land titling, definition of resource user rights, demarcation of a national protected area; facilitate the preparation of an integrated resource cadaster including forestry, agriculture, mining, tourism and other uses and assist in the development of economic alternatives to coca production in buffer zones.

Interventions proposed to monitor key indicators to determine effectiveness of resource management include monitoring of threatened marine flora and fauna, monitoring of river turtles and caimans, facilitating the preparation of a coastal resource management plan, assisting local communities develop a fish management plan and supporting INRENA glacier monitoring.

Recommended Environmental Threshold Decision. Activities under this Intermediate Result qualify for a Categorical Exclusion under 22 CFR 216.2 (c) as the actions supported under this activity will not have a significant effect on the environment. This section states that Education, technical assistance, or training programs except to the extent such programs include activities directly affecting the environment (such as construction of facilities)? are types of activities generally excluded from further environmental review.

2. IR 4.2 Mobilizing Public Support for Environmental Improvements

Policy assistance interventions proposed to support the development of a common awareness for Peru's biodiversity strategy and natural resource planning include developing economic valuation short courses in order to incorporate environmental and social costs/benefits in forest valuation and carbon sequestration, facilitating the organization of an international forum on biotechnology; assisting CONAM to develop a coherent strategy for ecological-economic zoning; and assisting in developing the regulations for the implementation of the Law for the Sustainable Use of Biodiversity.

Site-based interventions to support this IR include facilitating the establishment of effective protected area local management committees (e.g. strengthening the RMRTCs); establishing a valley-wide development and resource management plan as well as a buffer zone management plan.

Recommended Environmental Threshold Decision. Activities under this Intermediate Result qualify for a Categorical Exclusion under 22 CFR 216.2 (c) as the actions supported under this activity will not have a significant effect on the environment. This section states that Education, technical assistance, or training programs except to the extent such programs include activities directly affecting the environment (such as construction of facilities)? are types of activities generally excluded from further environmental review.

3. IR4.3 Innovative Technologies Tested Through Pilot Projects

Interventions in support of this IR will include promoting economic alternatives to coca production in the buffer zone and providing targeted extension as appropriate. This Activity will also support WWF initiative in forest certification training and awareness.

Recommended Environmental Threshold Decision. Activities under this Intermediate Result qualify for a Categorical Exclusion under 22 CFR 216.2 (c) as the actions supported under this activity will not have a significant effect on the environment. This section states that Education, technical assistance, or training programs except to the extent such programs include activities directly affecting the environment (such as construction of facilities)? are types of activities generally excluded from further environmental review.

4. IR 4.4 Cost Effective Sustainable Practices Adopted

In achieving this IR, USAID/Peru may fund policy assistance interventions that promote strategic incentives for biodiversity conservation and sustainable use including clearer definitions of access to genetic resources and development of a biotechnology plan. Since experiences in other countries may help Peru define its biotechnology plan, this Activity will facilitate the organization of an international forum in coordination with CONAM.

Site-based interventions to support this IR include facilitating the preparation of forest management plan for secondary forests; establishing development and resource management plans for the Valle de los Conchucos in collaboration with local communities; facilitating the preparation of a buffer zone management plan for the Rio Abiseo NP and Mariscal Caseres NF including ecological zoning and facilitating the preparation of a coastal zone resource management plan for Paracas in close coordination with IMARPE, INRENAj, and Peruvian NGOs.

Recommended Environmental Threshold Decision. A conditional negative determination is recommended for those activities such as preparation of management plans for biologically rich areas or threatened ecosystems that are not categorically excluded from additional environmental review. Annual work plans to be developed by Peruvian counterparts (IIAP, INRENA, IMARPE) and international and local conservation NGOs (WWF, Conservation International, The Mountain Institute, The Nature Conservancy, APECO, PRONATURALEZA, etc.) will outline potential negative impacts of the proposed activities and the measures and monitoring activities designed to mitigate these impacts. The Biodiversity Specialist on the core SO4 Team will determine if additional environmental review, mitigation or monitoring is necessary based upon review of the work plans submitted to USAID/Peru. Proposed activities not included in the annual work plans including amendments or extensions of approved activities after the current SO4 time frame will require further review and approval by both the appointed member of the core SO4 Team and the LAC Chief Environmental Officer.

Section 118 of the Foreign Assistance Act of 1961, as amended, requires the Agency, among other things, to ensure that programs or projects, to the fullest extent feasible, support training, research and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing, including reforestation, soil conservation, and other activities to rehabilitate degraded forest lands.

The proposed activities to promote the intensified and efficient use of secondary forests could be used as a model for sustainable forest management throughout appropriate areas of the Peruvian Amazon. Therefore, it is recommended that a positive determination be given this activity under IR 4.4 to assess whether the proposed secondary forest management schemes are: (a) environmentally and ecologically sound, (b) maintain the forest's natural functions, (c) minimize the impacts on biodiversity and (d) contribute to reducing deforestation. The environmental assessment should also determine whether the dissemination of these secondary forestry management techniques is appropriate for different forest ecosystems and socio-economic situations found in the Peruvian Amazon.

Under no circumstances will funds be used for: the procurement or use of pesticides; harvesting and marketing of threatened or endangered species; the purchase of equipment which could be used for commercial timber harvesting; nor activities, projects, or programs involving commercial timber harvesting unless the appropriate environmental assessment is conducted and approved by the LAC Chief Environmental Officer.

IR 4.5 Sound Policies Established and Effective Legislation Enacted

Policy assistance interventions proposed under this IR include:

- Developing economic valuation short courses in collaboration with the local universities (e.g. Consorcio Económico, UNALM) including methodology to incorporate environmental and social costs/benefits in forest valuation and carbon sequestration;
- Assisting INRENA in developing regulations for the implementation of the Protected Areas Law;
- Supporting INRENA to improve the protection and consolidation of key biodiversity rich areas promoting communal reserves border parks, and biological corridors (e.g. Gueppi, Divisor, Yaguas, Bahuaja-Sonene, Madidi NP, etc.);
- Contributing to INRENA's development of a re-organized natural forest management system;
- Providing technical assistance to identify disincentives to sustainable forestry; and
- Providing support to CONAM in developing a policy for ecological-economic zoning.

Recommended Environmental Threshold Decision. Activities under this Intermediate Result qualify for a Categorical Exclusion under 22 CFR 216.2 (c) as the actions supported under this activity will not have a significant effect on the environment. This section states that Education, technical assistance, or training programs except to the extent such programs include activities directly affecting the environment (such as construction of facilities)? are types of activities generally excluded from further environmental review.

Annex B

Analysis of Key Threats to Biodiversity and Fragile Ecosystems and Opportunities for Intervention

1. Analysis of Key Threats to Biodiversity and Fragile Ecosystems and Opportunities for Intervention

The conservation and sustainable use of biological diversity in at three levels—ecosystems, species, and genes—and forests are threatened by policies, including the role of both national and private interests, and by inappropriate use on the local level. Both of these kinds of threats must be considered in this activity design and will be analyzed separately in order to identify opportunities for intervention with regard to each.

1.1 The Protected Areas Focus

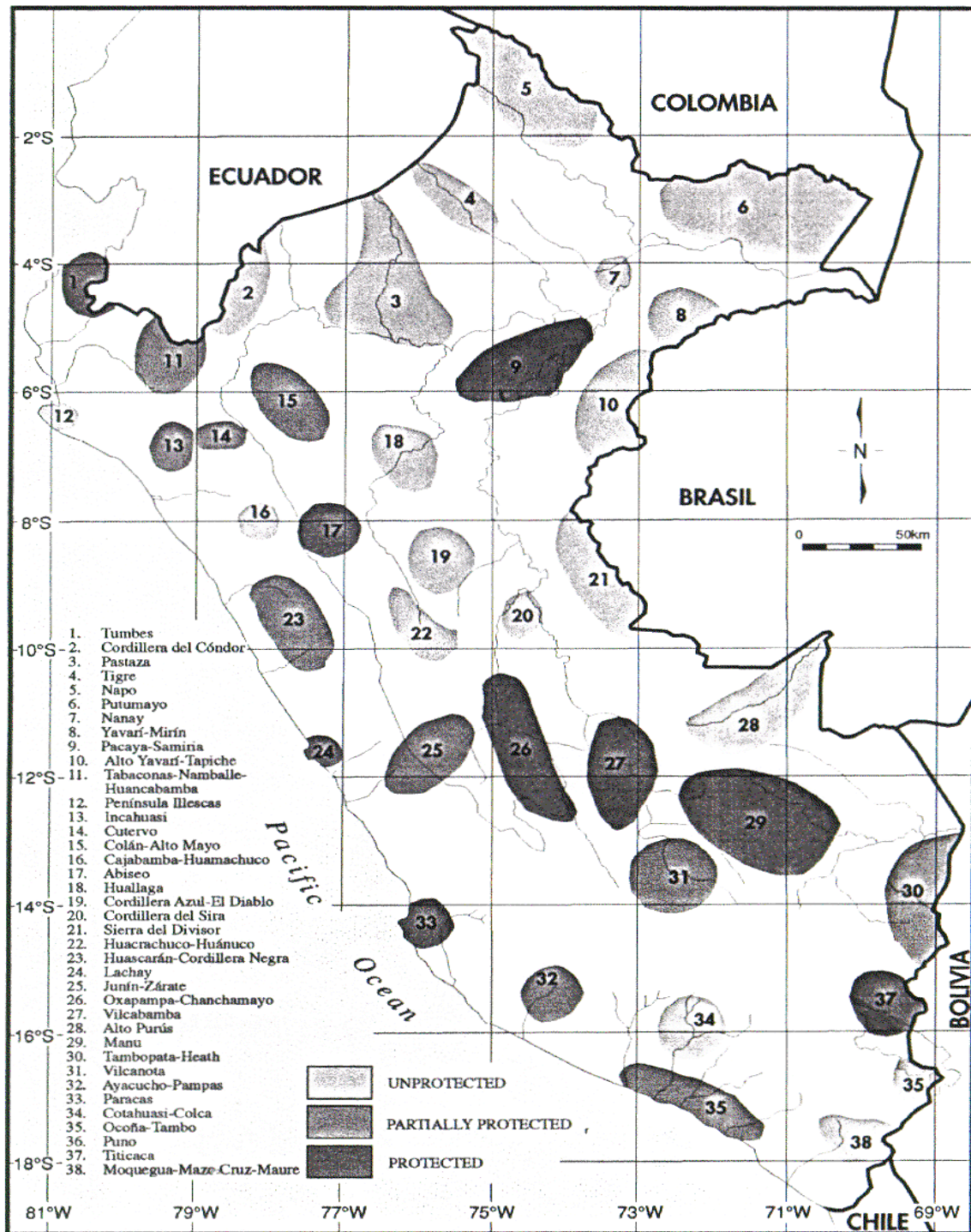
The tendency to believe that biological diversity in a country having such megadiversity as Peru is guaranteed by the National System for Public Natural Protected Areas (SINANPE) is not shared by the design team. SINANPE does not cover all forms of biological diversity, as several recent analyses (Rodriguez 1996; CDC 1991) have shown. Moreover, even if even if SINANPE did provide comprehensive coverage of Peru's biological diversity, it could not guarantee more than 50 percent of its conservation, according to island theory (Shaffer 1990).

Some of the elements of an integrated strategy for sustainable use and conservation of biological diversity are appropriate management of the natural resources without exceeding their capacity for recovery and regeneration, and the establishment of and compliance with norms that minimize habitat fractionating and deterioration.

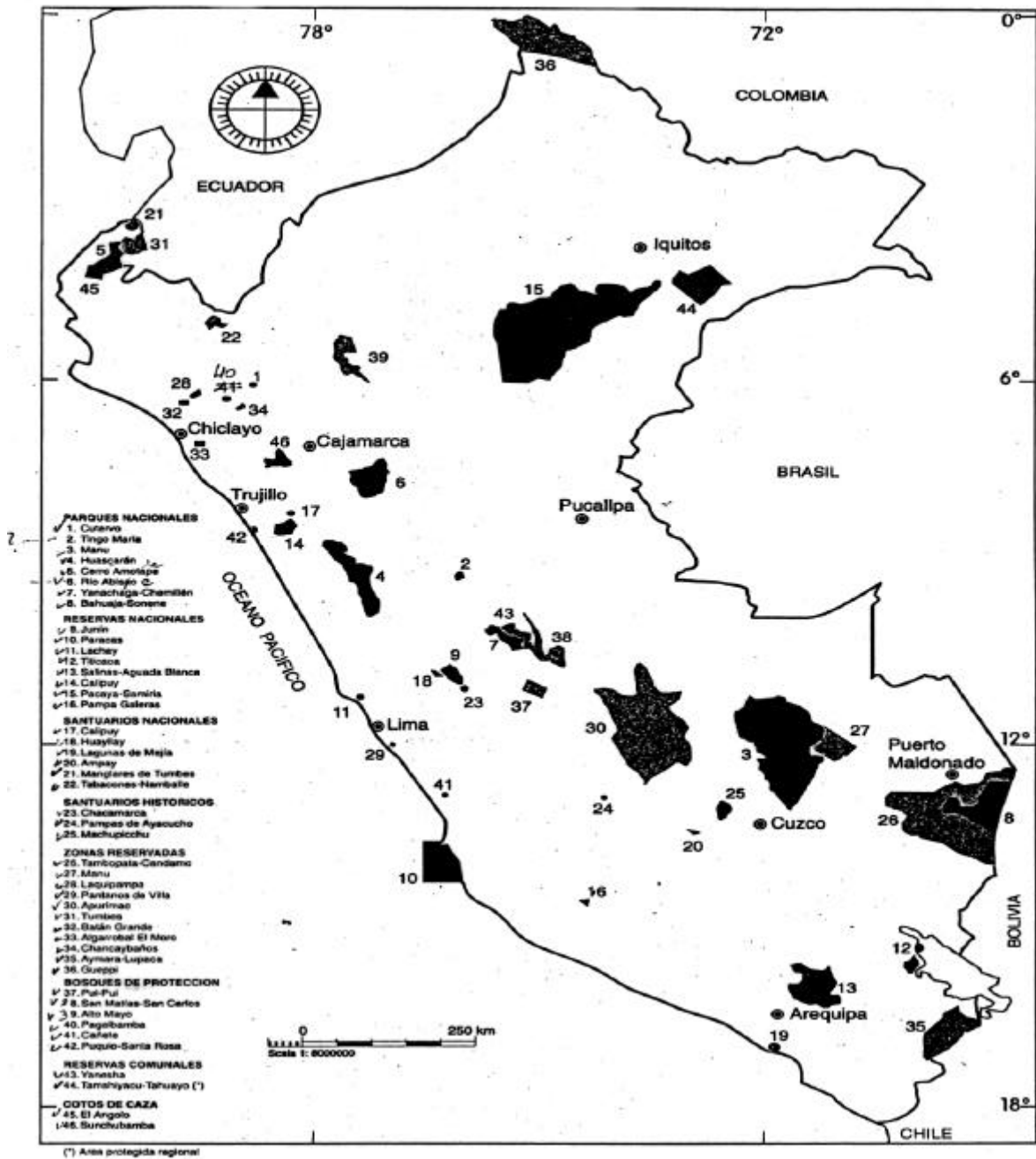
Nevertheless, a protected areas system is the most efficient manner of guaranteeing long-term conservation of biological diversity. The Peruvian Constitution and laws on biodiversity and protected areas recognize this. Moreover, Peru is a party to the Convention on Biological Diversity (CBD), which determines the need to establish priorities for the conservation of biological diversity and its sustainable use.

In 1994, during the process of elaboration of the Plan Director for the SINANPE, Rodriguez (1996), synthesizing a number of earlier proposals, identified 38 priority areas for the conservation of biological diversity in Peru (Map 1). In this analysis, those zones are considered as potential sites for intervention, since, at least in them, resource use should be managed in such a manner as to provoke the least biodiversity loss possible, although, ideally, each of these priority areas should be represented in the SINANPE. The areas currently protected by the SINANPE are shown in Map 2.

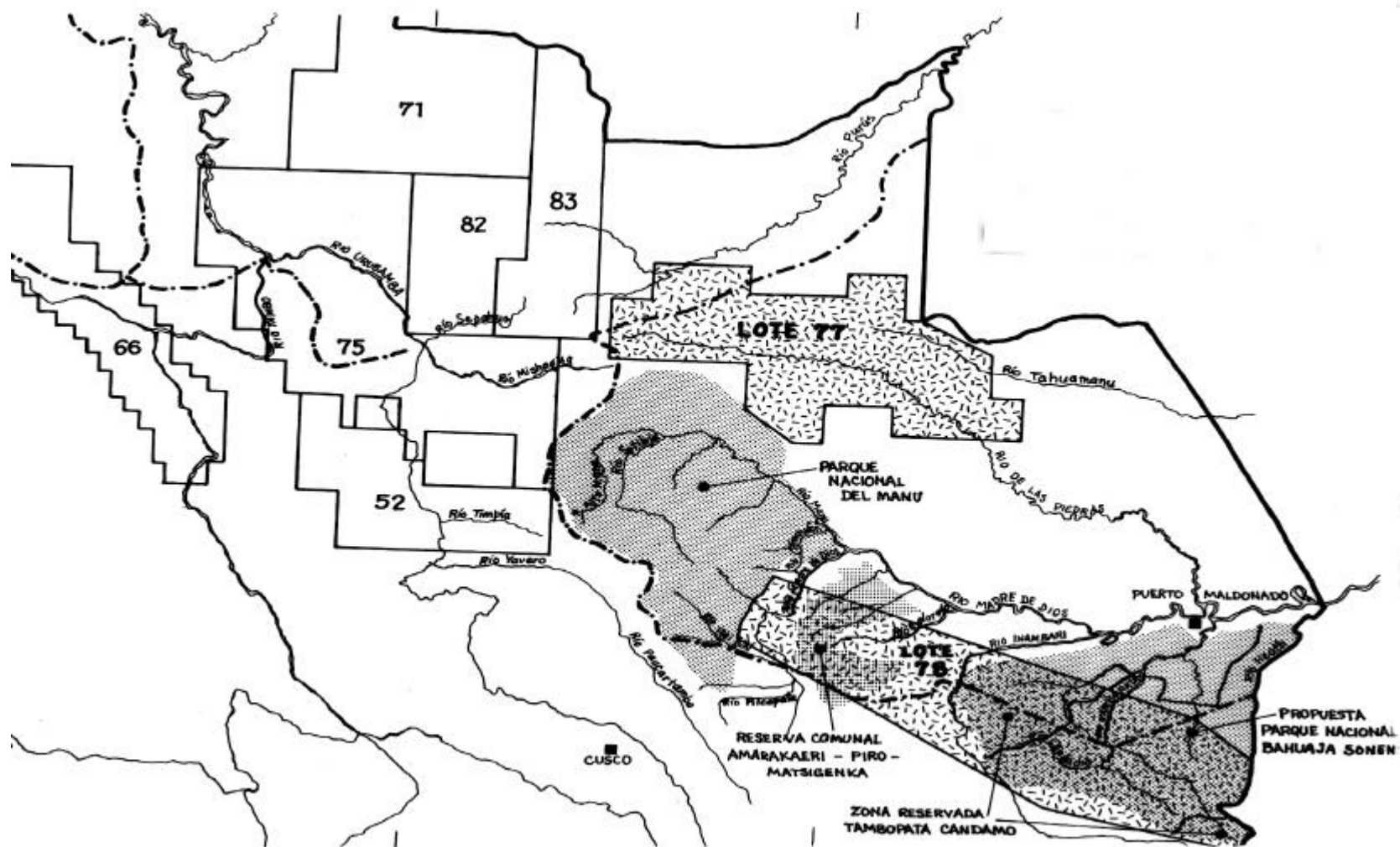
Map 1. Priority Zones for the Conservation of Biodiversity



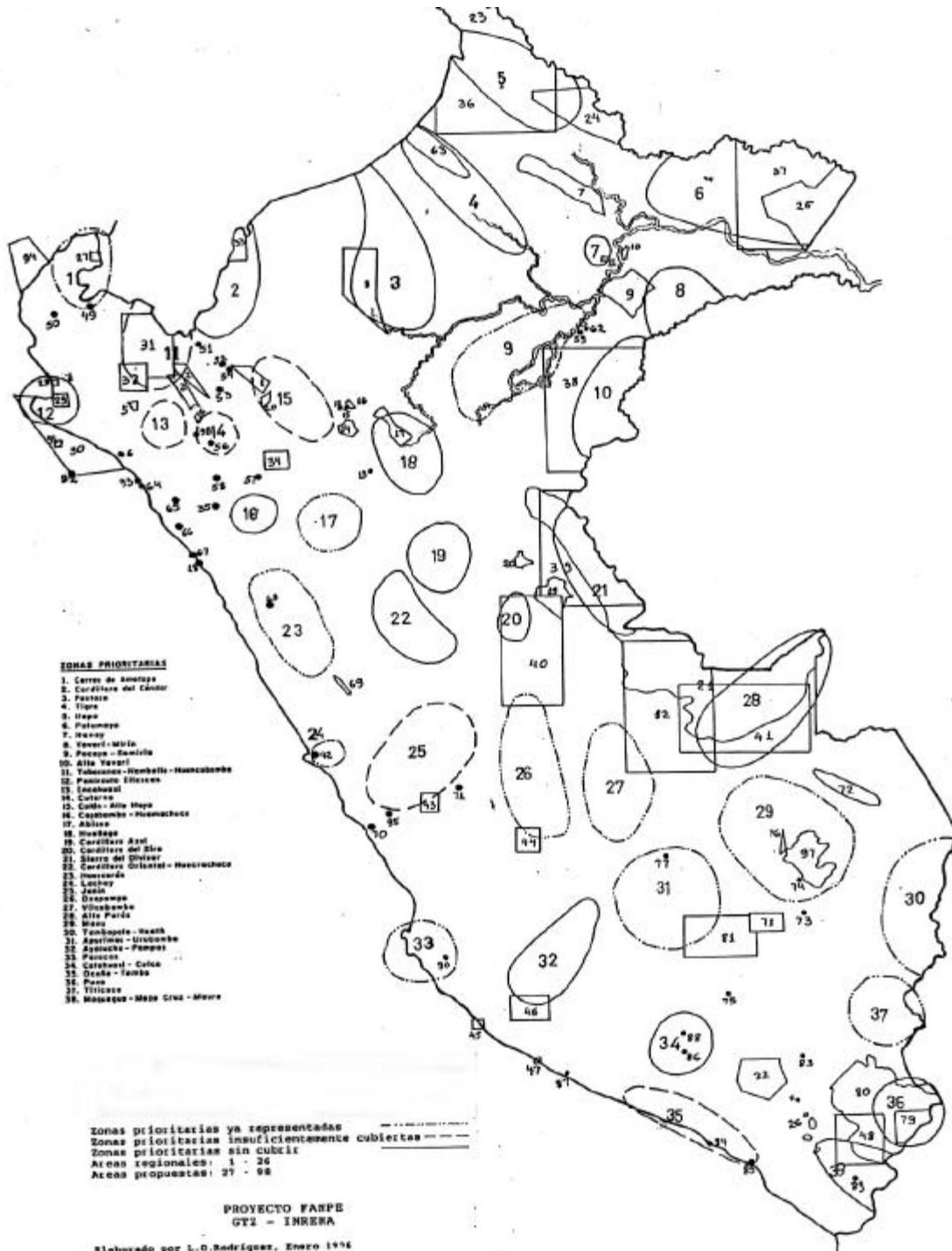
Map 2. National System of Protected Areas for Peru, 1997



Map 3. Petroleum Concessions in Madre de Dios



Map 4. Proposed New Protected Areas



1.2 Policy Threats

Many of the threats to Peru's biological diversity and forests derive from deficient public policies that lead to inappropriate and disorderly land and natural resource use. These considerations are addressed in Annex I, the Policy Analysis. Here the discussion is limited to the more immediate on-the-ground circumstances and their implications for the conservation and management of biological diversity and forests. These situations, of course should be understood in the context of the policy issues and discussion. Site-based interventions should be conducted with a view of influencing policy decisions that may improve conditions in many sites.

1.3 Disorderly Land and Natural Resource Use

Planning is inadequate in all of the sites under consideration, although it will be easier to work in those areas having master plans and some level of local community participation. Where these have not yet occurred, they should be developed as a part of the program.

None of the productive sectors has developed adequate resource management plans either on a national level or in specific sites, much less integrated their efforts across sectoral jurisdictions. To address these limitations, Activity interventions should encourage participatory processes involving all key stakeholders, especially local communities. Planning should proceed in a transparent, democratic fashion and make use of available information. Since such information is often lacking, it should be made available when possible, as well as experiences and lessons learned elsewhere. Pilot interventions could help inspire improvements in natural resource planning and should be encouraged wherever they may lead to more sustainable natural resource use even in a single area.

To overcome conflicts among different users of the same resources and of different resources in the same territorial space, this Activity should encourage all parties to seek common grounds and, where possible, associate their efforts in common planning efforts that take every stakeholders needs into account and seek to satisfy all.

Associations should be encouraged among stakeholders, including joint ventures between local communities and established businesses, when these can be organized in a socioculturally sensitive manner that ensures equity in the treatment of all parties.- Most of the efforts at joint ventures that have been made in these areas so far have tried to involve local communities in tourism activities. Cases in point are the tourist lodges built in indigenous and other local community territories in the Tambopata and Manu areas. Unfortunately, these have generated serious tensions from lack of social sensitivity and/or equity in the treatment of the local communities

Cadastrs are currently separate, but, if integrated, could help resolve intersectoral conflicts, such as mining versus agricultural or forestry use. For example, gold miners commonly stake legal claims within the titled lands of farmers and even indigenous communities. If cadastrs were integrated and planning harmonious, the same person could have rights to the land, the forest, the water, the fish, the minerals and the tourism potential in the same territory. This same person could be a single community or a joint venture between venture capitalists and local communities.

A key element of all such planning on the site level is the participation of local communities in the decision that are made regarding natural resource use. For protected area management, such participation has been called for, nominally, since the implementation regulations for the current Forestry Law were approved in 1977, calling for local management committees. These have been ignored for the most part and where they have been organized, largely ineffective, due to a lack of support from centralized institutions. Now, however, the discussions around regulation of the current Protected Areas Law will require a more serious effort to allow these local committees to assume their functions more fully and have greater effect.

The remainder of this discussion addresses threats to specific areas under consideration for site intervention.

1.4 The Lake Titicaca National Reserve

The Lake Titicaca area is considered a biogeographic province, shared between Peru and Bolivia (Udvardy, 1975). It was recently designated as a Ramsar Wetlands Convention site. The Lake surface, which averages 8,000 square kilometers provides livelihood to a fairly large human population. It is also one of the most sensitive of Peru's ecosystems to climate change.

The principal threats include contamination from human emissions and effluents and also mine tailings. Recently the Russian firm, Yuganskneftegas, conducted seismic exploration for oil and gas here before withdrawing from the area.

The area still lacks a Master Plan, although there were some participatory planning efforts in the early 1980s.

1.5 Madre de Dios

This area includes the Bahuaja-Sonene National Park (BSNP), part of which is in the Department of Puno, the Tambopata-Candamo Reserved Zone (TCRZ), and the more intensely used areas to the west and north of them, up to but not including the Manu National Park and Biosphere Reserve (MBR), which are treated separately. This area includes vast tropical forest with unusually high biological diversity, comparable to that of the MBR.

The TCRZ and BSNP have undergone extensive participatory processes between 1991 and 1993, which produced plans for zoning of natural resource use and for the boundaries of the BSNP. Once these plans were agreed upon, the participatory processes were discontinued. Moreover, when the BSNP was formally created in July 1996, the demarcation ignored the proposal arrived at through participatory processes and left out a major sector which was granted to Mobil Exploration and Producing, Peru, Inc., in March of the same year for oil and gas development. Not even INRENA, the GoP agency responsible for the management of the TCRZ and the proposed BSNP was consulted before the contract was signed with Mobil. Once Mobil had established the terms of its seismic exploration program, it began consulting with some of the local institutions that had been involved in the initial planning, but by that time, Mobil's contract was already agreed upon. Map 3 shows the areas of the Mobil contracts and of the protected areas affected.

Mobil is currently drilling an exploratory well within the area slated to form part of the BSNP. As a part of this process road improvements have been made that will facilitate access by colonists, loggers and others whose natural resource use has not previously been sustainable. However, should Mobil not discover commercial oil or gas in this area, it would release the block, and the corresponding lands could be incorporated into the BSNP. This situation, already established in the Resolution creating the BSNP provides an important opportunity for getting more hectareage of forest containing high levels of biological diversity under protection.

This area is also one of serious conflicts between gold miners and the owners of land and users of other resources. Gold mining goes on even within the BSNP and the TCRZ within legal claims and also informally. It brings with it extensive deforestation and soil erosion, as well as discharges into the water system of mercury and other toxic metals in mine tailings. The Kaichihue and Huepetue areas to the west of the Inambari River are the most seriously affected, with more than 50 thousand hectares of forest destroyed by heavy equipment used in gold mining, the underlying soils completely removed, and the once abundant water and wildlife now completely absent. Indeed, this area is one where the State has failed completely to establish any semblance of authority.

Moreover, within the TCRZ and neighboring areas, tourism is being promoted with no sense of order or carrying capacity. Recently the tourist lodge owners in the area formed an Association for Ecotourism in Madre de Dios in an effort to find common criteria for tourism management in the area. BIOFOR could intervene here to help bring order to that situation.

Additionally, traditional indigenous peoples have obtained titles to local areas that are part of their traditional territories but hunting territories and forest used for traditional resource collection are rapidly being intervened by outside interests. To counter this tendency the Madre de Dios Native Federation (FENAMAD) proposed the creation of the Amarakaeri Communal Reserve in 1992, which has not yet been acted upon by the authorities in Lima. This communal reserve would preserve a traditional hunting and gathering territory for the Harakmbut and other neighboring communities of the surrounding area and also protect a fragile ecological zone that protects the lower watershed for other kinds of resource use. Meanwhile, timber interests and colonists are promoting the construction of a road across the proposed communal reserve that seriously threatens both the possibility of the communal reserve and the protection of its forest and fragile lands. An effort should be made to consolidate criteria among stakeholders and obtain formal approval of the creation of the Amarakaeri Communal Reserve, as well as a management plan that would address the external threats.

Timber extraction is one of the principal market activities in the Madre de Dios area. This area also includes much of the remaining mahogany (*Swietenia tncrophylla*) and tropical cedar (*Cedrela odorata*) remaining in Peru. Currently it is being extracted in a very inefficient and destructive fashion, destroying vast areas of surrounding forest to obtain a single tree having market value. Moreover, indigenous community lands are being invaded by timber extractors. Sound natural forest management practices could easily be introduced here, if there were political and logistical support for them. Moreover, much of the pressure on hard tropical timbers could be eliminated if producers were to agree to voluntary certification of forest management, rendering them eligible for new export markets that will be closed to them in the year 2000 without certification.

In addition to timber extraction, non-timber forest products, including Brazil nuts and rubber are also present in the area. Brazil nuts are currently being produced for export. Better management planning is needed as are better markets for the existing production. Brazil nut production is sustainable, since the trees are not felled under current practices. Rubber production could be similarly sustainable if suitable markets for it were found.

Some of the pressures on forests and the few commercial forest products could be diminished by sound management and more intensive use of secondary forests. Careful, focused extension work in a pilot site could demonstrate how additional value could be obtained from such more intensive use of timber, Brazil nuts, medicinal plants, permanent crops, and annual crops through appropriate agroforestry systems. The Madre de Dios Agrarian Federation (FADEMAD) and the FAO Forests, Trees, and Peoples Program jointly sponsored a participatory two-week long workshop gram in “analogue forestry” in this area in June 1998, based upon a Sri Lankan experience. That experience could be continued and strengthened with a view of making better use of secondary forests.

1.6 The Manu National Park and Biosphere Reserve

This area includes the Manu National Park and the Manu Reserved Zone as SINANPE units and adjacent territories that are occupied by human populations, both indigenous communities and colonists in the Departments of Cusco and Madre de Dios. It includes the northeastern slope of the Andes at this latitude from a watershed at more than 4000 meters elevation to less than 400 meters elevation. This geography allows for a climate having seasonally varied rainfall with some floodplain soils but not the diminished biodiversity that comes with slower, more homogenous river systems.

There is abundant documentation on the biological diversity here, since scientists from Princeton and Duke Universities, the Smithsonian Institution and many other research centers have been coming here for nearly three decades. It includes swamps and montane forests that house numerous endemic species, as well as some as yet undocumented. Even so, this area has near world records in bird and amphibian species and comparable records to those of the Tambopata area in fish and butterflies.

These are very fragile ecosystems under pressure from agricultural and cattle raising uses as well as timber extraction. The Andean buffer area includes nearly 8,000 people within approximately 300,000 hectares. The lower reaches, where timber extraction and colonization for cattle raising constitute the principal threats include 5,000 people in more than a million hectares. Most of the established people in these areas are indigenous, including Machiguenga and Kugapakori, Yine and Yora Indians, as well as Quechua-speaking highland indigenous peoples. Colonization has been a major force since the 1950s. Tourism is only recently beginning to come into this area; it should be planned and monitored. Most tourism is in the Manu Reserved Zone, where INRENA has responsibility. It should be carefully planned in close coordination with the local indigenous and colonist communities.

The northwestern boundary of the Park is very near the Camisea gas fields, where Shell has been exploring and beginning the development process. The Smithsonian Institution has done further research here as has Conservation International, in coordination with Shell. Whoever ultimately develops these gas fields should be intimately involved in the planning for the use of the natural resources in this area, including the MBR.

1.7 The Ica Coast

This area includes the Paracas National Reserve (PNR) and the adjacent bays and coast, extending south to San Juan de Marcona, the principal breeding ground for the Humboldt penguin and the two species of sea lion. This ecosystem is formed by when the Peruvian or Humboldt Current bathes the south central Peruvian coast and forms the richest source of marine wildlife there. It is also the principal source of seafood for the Lima market and an important recreation center that receives 25 to 30 thousand tourist per year. It is also the location of several hundred archaeologically important sites having a time frame of six thousand years.

The flow of tourists, which generates important income for some in this area, through the hotel and associated industries, is not adequately planned or ordered to avoid harm to biological values here. There is no calculation of the damage done either to the archaeological sites or nesting areas by the numerous trails that provide access to beaches.

PNR has a recent Master Plan (INRENA, 1996), which includes a very limited zoning plan that neither resolves current problems nor anticipates any increase in recreational use or the possibilities of managing the Reserve's numerous resources in the future. This Master Plan needs to be strengthened and assumed by all parties.

Paracas is one of the few areas that has a functioning local support committee. This committee should be involved in all planning of resource use in the area, including the fish meal industry in the Paracas Bay, which does not participate now.

One site within the Reserve, Laguna Grande, provides most of the scallops for the Lima market. Mere, thanks to the efforts of the Local Committee in support of the Park administration, the scallops fishermen are internally organized into syndicates that determine where each works and controls extraction by size and volume. A recently approved SENREM pilot project works with the scallops fishermen here to document carrying capacity and artificially cultivate and manage scallop production and maintain the health of the ecosystem. That effort should be continued and strengthened.

Another SENREM experience is the pollution prevention effort with the fishmeal industry in Paracas Bay. Here the challenge is to get the fishmeal industry owners to enter into dialogue with the other stakeholders. One possibility of access to that industry is through the Paracas Hotel, which is owned by one of the fishmeal companies.

A Canadian salt mining company, Quimica del Pacifico, now operates a former state-owned salt mine within the PNR. This mine site is below sea level, and the company has dug a channel to bring water to the salt deposits and facilitate extraction. Neither the Reserve administration nor the NGOs has information on how that channel affects the ecosystem in the area.

More monitoring of the health of species and the ecosystem as a whole needs to be done here. The Peruvian Oceanic Institute (IMARPE), in association with the Peruvian Association for the Conservation of Nature (APECO) is now doing some monitoring of marine flora and fauna on this coast. This effort could probably be supported or complemented by local community and/or private sector efforts. Scientists from the University of Ica are cooperating closely with the Park administration and IMARPE. Their efforts should be supported.

Both the World Wildlife Fund (WWF) and the German Government are planning important efforts here. Careful coordination is needed with the Parks in Peril interventions and any complementary input from BIOFOR.

1.8 Tingo Maria National Park

This is the second national park created in Peru, dating from 1965. It includes an area of montane forest on the eastern slope of the Andes that maintains populations of several threatened species. It is the only national park in Peru for which no boundaries were defined at the time of its creation. This situation results in difficulties in ordering land tenure with encroaching colonists. This area was included for consideration at the request of INRENA. It is also of interest to the Mission's S05, since it is in a coca producing and processing area.

Among potential opportunities for intervention here are the definition of permanent Park boundaries and subsequent land titling for neighboring colonists. That could diminish deforestation pressures substantially. Also, alternative economic activities would be important both for protecting the biological diversity here and in preventing or diminishing coca production.

1.9 Calipuy National Reserve and Sanctuary

These two protected areas were created to recover and protect populations of two species in danger of extinction, guanaco (*Lama guanicoe*) and the *Puya raimondii*. Neither area has effective management. A management plan, including recovery and monitoring of these populations would be very useful. There should also be recommendations for more sustainable uses of the National Reserve, involving the neighboring peasant population.

1.10 Huascaran National Park and Biosphere Reserve (HBR)

For the purpose of this analysis, this area includes the Park and Biosphere Reserve as such, the Huayhuash Mountains and two neighboring valleys, the Callejon de Huaylas and the Callejon de Conchucos. The HBR includes the Cordillera Blanca, the highest tropical mountain range in the world.

One alarming phenomenon here is the retreat of the glaciers in the Cordillera Blanca. Recent studies of this phenomenon have shown that in the Pastoruri area, the glacier has retreated from 4800 meters altitude to 5500 meters, as a result of the 1998 El Nino phenomenon. This situation deserves monitoring as well as the advances and retreats of the natural vegetation in the area affected by it.

The HBR has a Master Plan, which was developed with some local and stakeholder participation, but it needs to be updated. It also has a Tourism Plan, developed with the support of The Mountain Institute to encourage better distribution of the tourism and mountain climbing pressures. Currently, Lake Llanganuco receives more than 50 thousand tourists per year.

INRENA has identified four critical management areas: Quebrada Honda, Pachacoto, Catac y Chiquian, where the biggest threat comes from mining. INRENA has not yet been able to enter into agreements with the mining companies or to prevent mining activities that are incompatible with the purpose of the Park or where activities outside the Park impact directly upon its integrity. These are high altitude areas, where vegetation and wildlife habitats are delicate.

A case in point is the Antamina zinc and copper mine, now being developed by a Canadian consortium just outside the Park. A road is to be improved or built to permit the transportation on mine order from the mine to port. This route was planned to cross the Park at high altitudes where the impact would be substantial. Following efforts by TMI and others, the Canadians now appear to be willing to choose another route to the south. However, other mines in the area, including some small ones within the Park itself and proposed large mining claims in adjacent areas pose similar threats to the integrity of the Park and its biological diversity.

A practical effort to bring order to mining within and near the HBR would make a major difference in diminishing the threat of disorderly mining to the Huascarán ecosystem. This would involve clear rules on environmental standards, including the quality of tailings and other emissions, in accordance with existing normative standards, effective regulations on the abandonment of mine sites, an ordered and accessible cadaster, among others.

Generally speaking, one of the principal limitations of the SINANPE is the lack of stability in its administration. In Huascarán, however, Rene Valencia has been the only Park Chief, since the Park was created in 1975. He deserves support and a demonstration of the advantages of maintaining program continuity.

1.11 Rio Abiseo National Park

This area on the eastern slope of the Andes includes important biological diversity. It represents several ecological niches of montane forest between the upper tropical rain forest limits and the Atlantic-Pacific watershed. This is a seriously threatened ecosystem (Dinerstein et al., 1995) with a large number of endemic species.

There are two access routes which have resulted in subdivision of the area's administration by SINANPE. The Andean sector is reached from the La Libertad side, with the Park Chief stationed at Pias. This is the usually access route to the Gran Pajaten ruins. Currently this area is closed to tourism because of the fragility of these ruins. If these were restored, they could lead to important tourism in the area, although this should be carefully planned with participation of all stakeholders.

The other access route is via Juanjui, in San Martin Department. This sector is most threatened by deforestation. One of the principal cause of this deforestation is coca cultivation, and this has produced significant biodiversity loss in vegetable species having very limited distribution (Young, 1996).

It will be important to establish management plans for the primary and secondary forests in this area, outside the Park boundaries. Sound agroforestry interventions or other means of intensifying natural resource us in fewer places would be important innovations here.

1.12 The Pacaya-Samiria National Reserve

This Ramsar Wetlands Convention site of 2 million hectares is Peru's largest protected area. It includes extensive palm swamps, ox bow lakes and channels between river systems. This geography supports one of the world's densest masses of fish, riverine mammals, and reptiles. It includes several endangered primate species, such as *Pithecia*, that are not protected elsewhere.

The most important resources in this Reserve are water fauna, including *Arapaima gigas* and other unique fish species, totaling over 200 edible fish species that lack proper management. Also important here are river turtles, both the charapa (*Podocnemis expansa*) and the taricaya (*P. zizifilis*). Although Iquitos, the principal market, is currently a full day's trip from this area, a new road is being built from Iquitos to Nauta, just across the Marañon River from the Reserve, and pressure on both the fish and turtles species is likely to increase substantially. Management plans for these resources would be important contributions here, as would careful, systematic monitoring of the faunal populations.

1.13 Cerros de Amotape National Park and Northwest Biosphere Reserve

This area includes the Cerros de Amotape National Park, the Angolo Hunting Preserve, and the Tumbes Reserved Zone. It is one of the most fragile and deteriorated of Neotropical ecosystems having a large number of endemic species and slight capacity for regeneration (Dinerstein, 1995). The principal threat is timber extraction for the elaboration of parquet, firewood, and carbon, although extraction volumes are not well known. Alternatives for energy use or electrification of populated areas near the Park could lead to diminished pressure on these resources

The Park lacks a Master Plan and needs territorial ordering. This area has had the benefit of some participatory processes and environmental education from WWF programs.

The El Angolo Hunting Preserve could provide a pilot example for sport hunting and could produce significant revenues. There is some information on populations of deer and other species, but it is not well disseminated.

The Tumbes Reserved Zone, previously a national forest includes parts of the humid Pacific tropical forests of El Caucho and Campo Verde. These could be annexed to the Cerros de Amotape National Park to improve the level of protection. This area borders Ecuador. It includes livestock raising and agricultural activities that are not currently planned or ordered.

1.14 Manglares de Tumbes National Sanctuary

This Ramsar Wetlands Convention site is the only mangrove swamp under protection in Peru. It is a small site under strong pressure from shell fishing and other forms of habitat destruction. It needs better resource management and a plan for the recovery of the mangroves. It could also serve an important site for monitoring climate change.

1.15 Conclusions on Opportunities for Site-Based Interventions

Of Peru's 38 priority areas for the conservation of biological diversity (FANPE, 1996), 16 are not included in the SINANPE. Nine of these 16 areas are located in border areas. Table 1 provides a listing of these areas that should be considered candidates for inclusion under protection status in Peru and that are shown in Map 4.

Table 1. Border Areas that should be Considered for Protection in Peru

Priority Border Area	Department in Peru/ Bordering Country	Protection Proposal
Cordillera del Condor	Amazonas/ Ecuador	Cordillera del Condor (CI)
Pastaza	Loreto/ Ecuador	None yet
Tigre	Loreto/ Ecuador	Pucacuro
Putumayo	Loreto/Ecuador/Colombia	Gueppi Reserved Zone, Yaguas
Yavari Mirim	Loreto/ Brazil	None yet
Alto Yavari-Tapiche	Loreto/ Brazil	None yet
Serra do Divisor	Ucayali, Brazil	None yet in Peru
Upper Purus	Ucayali, Brazil	None yet
Moquegua-Mazo Cruz- Maure	Moquegua/ Bolivia/ Chile	Aymara-Lupaqa Reserved Zone

1.16 Biological Corridors

The ideal design for SINANPE determines some of the desirable characteristics for efficient biodiversity conservation in relatively large, contiguous areas. However, political opportunities for land distribution as private property have led to smaller protected areas than would be ideal, with great distances between one protected area and another.

Connections between separate areas are important to ensure the maintenance of viable populations of endangered or threatened species, especially those species having slight capability for dispersion. One practical solution would be to establish biological corridors that would allow connections between one protected area and another. The new Protected Areas Law contemplates the establishment of areas of private property that might contribute to the creation of biological corridors in Peru.

There are two important possibilities for such corridors at this time. One is in the southeast, where the Manu Biosphere Reserve could be effectively connected with the Bahuaja-Sonene National Park and Tambopata-Candamo Reserved Zone through titled local community lands and the proposed Amarakaeri Reserved Zone. Another could cross the northern Peruvian Yungas and link this regionally important but threatened ecosystem (Dinerstein, et al., 1995) by connecting the Cordillera del Condor, the Tabaconas-Namballe National Sanctuary, the proposed Cordillera de Colan Communal Reserve, the Upper Mayo Protection Forest, and the Rio Abiseo National Park. Such a proposal would have to seek more areas to complete those currently in existence, but most of the areas that would be considered are relatively unpopulated by humans.

1.17 In Situ Conservation of Genetic Resources

The possibilities for in situ conservation of genetic resources within protected areas has not been studied. If successful, it could bring substantial value added to the economies of protected areas and their surrounding territories. Many species of wild flora and fauna have important commercial value. An inventory of such resources in protected areas and their valuation, at least for cultivated plants maintained by local populations should be considered in planning for instruments to determine benefits for local populations in protected area management.

1.18 Peru's Critical Environmental Zones

In 1986, with USAID financial support, Peru prepared its Environmental Profile (ONERN, 1986) which identified 13 critical zones. Some of these coincide with priority areas for the conservation of biological diversity. In 1997, CONAM established five critical environments, Ilo, Huallaga, Mantaro, Madre de Dios and Chimbote. Of these five areas, two are considered here for their high levels of biological diversity.

CONAM has begun establishing its Regional Multisectoral Technical Committees (CTMR), more or less on a departmental level, although some departments are combined into a single CTMR. The CTMR have responsibility for the ecological economic zoning called for since 1978 in the Amazon Basin Cooperation Treaty. CTMR composition is similar to CONAM's Multisectoral Technical Committee on a national level. To date, only two CTMRs have been established, in Cusco and Madre de Dios. Others are planned for the Upper Huallaga area including the Tingo Maria National Park, the Ica Coast, the Northwest Coast (Tumbes and Piura) and Loreto. The UNDP, under the Capacity 21 program is providing planning efforts for the implementation of the CTMR. Planning for biodiversity and forest conservation should be carefully coordinated with the CTMR where they have been established.

1.19 National Forests and Permanent Production Forests

Peru's adherence to the International Tropical Timber Agreement (ITTA) on the terms of exportation of tropical timbers requires the adoption of management plans that incorporate sustainable production over a long period of time. A new forestry law has been under discussion since 1990. At the same time, Peru is planning to grant private concessions in its national forests, which will become permanent forestry production units (UFPP). These are being demarcated and mapped on cadasters with tenders for long-term private concessions to be let in the coming months. The first planned is that of the Biabo-Cordillera Azul National Forest, of which the UFPP includes traditional Shipibo and Cacataibo Indian territories in the Pisqui and Aguaytia River Basins of Loreto. The process of organizing and granting these private concessions is the responsibility of Peru's Privatization Commission (COPRI). COPRI has requested technical assistance from the Mission on criteria for natural forest management requirements and methods for involving local communities and other stakeholders in the process. Table 2 provides the names of the national forests under consideration for private concessions, their locations and areas

Table 2. National Forests Considered for Private Timber Concessions by COPRI

National Forest	Location	Area (Hectares)
Biabo-Cordillera Azul*	Loreto, Ucayali, San Martin	2,100,000**
Von Humboldt*	Huanuco	400,000
Rio Tamaya	Ucayali	900,000
Pebas	Loreto	1,400,000
Yurimaguas	Loreto	500,000
Contamana	Loreto	500,000
Rio Yavari*	Loreto	1,000,000

National Forest	Location	Area (Hectares)
San Martin	San Martin	300,000
Tambopata*	Madre de Dios	500,000
Puerto Inca	Huanuco	400,000
*priority biodiversity areas		**just under 700,000 has. designated for UFPP

BIOFOR interventions should consider one or more of these areas, especially those considered priority areas for biodiversity, as well as other biodiversity rich national forests that may be selected later, particularly the Morona-Santiago-Pastaza forest in northwestern Loreto, and the Mariscal Caceres National Forest in San Martin near the RAMP.

In areas where these forests have already been intervened and converted into secondary forest, there will be opportunities for alternative forms of managing these secondary forests that are more sustainable and also generate income for the neighboring local communities.

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Annex C
Institutional Analysis

1. Institutional Analysis

1.1 Public Sector Institutions

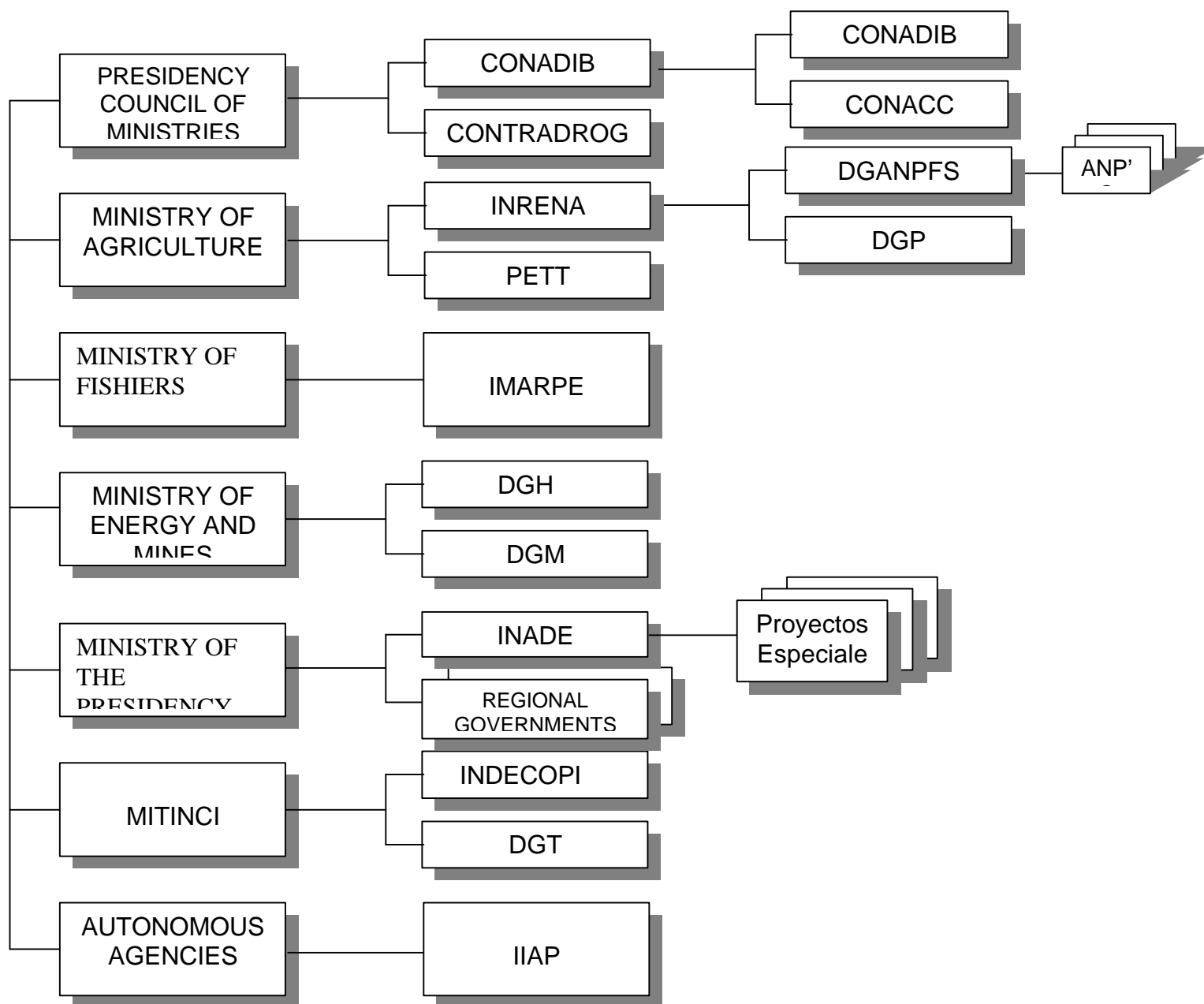
The potential public sector partners in this activity are presented in Figure 1. Among them, the proposed direct participants in the activity agreement are the National Environmental Council (CONAM) and the National Institute for Natural Resources (INRENA). For legislative changes, coordination with the Committee on the Environment, Ecology, and the Amazon Basin of the Peruvian Congress will be necessary.

CONAM is a semi-autonomous public agency within the Office of the Presidency of the Council of Ministers (PCM), called for in Peru's Environmental Code in September 1990 and created in 1994. Under a November 1991 modification of the Environmental Code, prior to the actual creation of CONAM, environmental authority was placed with each public sector, headed by a Ministry, and not under a central body like CONAM. Thus, CONAM's function is one of coordination and not of defining policies for the sectors. CONAM's purpose is to provide inter-sectoral coordination to this authority and to seek to standardize environmental regulations and procedures among the sectors in a coherent manner. CONAM's Board of Directors includes representatives from the Ministries of Economy and Finance; Fisheries; Agriculture; Energy and Mines; Health; and Industry, Tourism, and Domestic Trade --but not the Ministers themselves--as well as representatives of local governments and private industry.

CONAM's current leadership has deliberately assumed a go-slow, bring-everybody-on-board-first approach to inter-sectoral environmental coordination. As a result, CONAM has critics who consider it less than dynamic or effective with policies dominated by industrial and mining interests rather than a national consensus. However, in October 1997, CONAM obtained approval for its Organization and Functions Regulation and, in November 1997, presented its Framework for Environmental Management (MEGA), which defined a much clearer strategy for inter-sectoral coordination. CONAM's Agenda until the Year 2000, a work plan presented at the EcoDialogo in Arequipa in November 1997, defines a program of action in key sectors over the next three years.

INRENA is a decentralized organ of the Ministry of Agriculture (MAG). Created in 1992, it incorporated the functions of the long-established Office for the Evaluation of Natural Resources (ONERN), previously an organ of the National Institute of Planning, along with the functions of MAG's General Bureaus of National Protected Areas and Wildlife (now DGANPFS) and Forestry (now DGF). Among its other functions, INRENA is also the national authority on soil and water policies and usage within Peru, and it is charged with mapping and the development of the Geographical Information and Remote Sensor System (SIG) used in for planning in the development of Peru's renewable resources. INRENA's DGANPFS represents MAG in the CONAM Board of Directors.

Figure 1. Relationships among GoP Institutions Involved in BioFor



DGANPFS manages Peru's Public Protected Areas System (SINANPE) of national-level conservation units and regulates wildlife management, including the trade of endangered species in compliance with the Convention on the Trade of Endangered Species (CITES) and with the Ramsar Convention on Wetlands.

DGF regulates the management of Peru's forests and forest products, and oversees compliance with the International Tropical Timber Agreement (ITTA). One of its current efforts with international cooperation (Dutch) is the Mesquite (Algarrobos) Project in the northern Coast areas of Lambayeque and Piura. Responsibility for the granting of private concessions in Peru's national forests now lies with the Privatization Commission (COPRI), formerly the Committee for the Promotion of Private Concessions (PROMCEPRI).

In January 1998, INRENA was transferred from MAG to the Office of the President of the Council of Ministers, where it remained until June 1998 when it was returned to MAG. The result of this structural shuffling has been much confusion and uncertainty for efforts to plan and develop strategies for the conservation of biological diversity and forest management in Peru.

Another MAG agency important to this Activity is the Special Project for Land Titling (PETT). PETT has the responsibility for defining property rights to land for native communities, colonists, private enterprises and other actual or potential landholders. It assumed the principle ongoing functions of the defunct General Bureau for Agrarian Reform (DGRA).

In 1992, with encouragement from the World Bank, the GoP created a fiduciary Fund for the Promotion of Public Protected Areas (FONANPE), administered by an autonomous organization, PROFONANPE, that includes the NGO and donor communities, as well as INRENA, to coordinate international cooperation in support of the SINANPE areas and plan a coordinated strategy for that cooperation. PROFONANPE, which began its operations with German Technical Cooperation Agency (GTZ) support and a stopgap FONANPE contribution from the MacArthur Foundation, became more fully effective when the World Bank's Global Environmental Facility (GEF) contribution of five million dollars materialized in 1995. It has since obtained additional resources from debt swaps with the Canadian, Swiss, Dutch, Czech, Australian, British, French, and the Finnish Governments. The Mission Environmental Strategy (MES) indicated that as much as \$30 million of Economic Support Funds might be channeled into the FONANPE. That has not happened.

Between 1994 and 1997, relations between PROFONANPE and its immediate beneficiary, INRENA, were acutely strained. PROFONANPE includes NGOs on its Board and takes guidance from the donor community, leading INRENA to believe that the donor community and NGOs were usurping its normative functions. The NGOs and donor community felt that INRENA sought to make political use of PROFONANPE resources while blocking effective citizen and private sector participation. That situation has improved in recent months. PROFONANPE has a new Executive Director more acceptable to the INRENA leadership, and INRENA now has new leadership that is more acceptable to the donor community and NGOs.

The Ministry of Foreign Relations (MRE), formally the agent for all bilateral agreements between the USG and the GoP, includes in its structure a Bureau of Specialized Affairs, under which the Department of the Environment and Sustainable Development provide the internal coordination that determines Peru's positions on environmental matters in international affairs.

The National Commission on Biological Diversity (CONADIB) was created in 1993 to provide inter-sectoral coordination for compliance with the terms of the Convention on Biological Diversity (CBD) to which Peru is a party. CONADIB includes 19 GoP agencies, 8 NGOs, 4 universities, 3 international organizations and two individual Peruvian experts. It is presided over by CONAM. INRENA assumes the principal technical advisory role in CONADIB, which is presided over by CONAM. CONADIB tasked INRENA with the realization of a National Study of Biological Diversity, which was published in four volumes in April 1998.

Similarly, the National Commission on Climate Change (CONACC) was created to provide inter-sectoral coordination for compliance with the terms of the Framework Convention on Climate Change (FCCC) to which Peru is also a party. CONACC includes representatives from 19 GoP agencies, eight NGOs, four universities, and one local government. It is also presided over by CONAM.

Peru's Congress has a standing Committee on the Environment, Ecology and the Amazon Basin, which has played an important role in developing new and improved environmental legislation, especially the new laws approved in 1997. Initiatives for new legislation, particularly a new forestry law, ought to be developed in coordination with this Committee.

In the Amazon Basin, the GoP agency that conducts scientific research and provides policy orientation and guidelines for that region is the Peruvian Institute for Amazonian Research (IIAP). IIAP, an officially autonomous public agency based in Iquitos, is CONAM's principal partner in the coordination of environmental criteria in the Amazon Basin, particularly in the organization of the Regional Multisectoral Technical Committees (CTMR) in the Amazon Basin departments or region and in the planning in those regions for the process of ecological economic zoning (EEZ) that the GoP has adopted as its framework for environmental planning in accordance with guidelines of the Amazon Cooperation Treaty (TCA).

IIAP has regional offices and regional programs based in Pucallpa, Tarapoto, Yurimaguas, Tingo Maria, and Puerto Maldonado. IIAP's principal source of funding is principally the oil canon, which has been declining in recent years, along with oil and gas production. However, it continues to group the most serious research team in Peru working on Amazon Basin issues. Both the IIAP central office in Iquitos and its regional offices may now enter into agreements with international cooperation agencies, universities, or PVOs to support their ongoing programs of research interventions in support of sustainable development in the Amazon region.

The Peruvian Oceanic Institute (IMARPE) conducts scientific research and develops guidelines for the management and commercial exploitation of fish and other marine fauna and flora

IMARPE will be an important partner in monitoring the health of indicator species in marine ecosystems such as Paracas. It currently conducts research on fish, birds, and cetacean mammals along the Peruvian coast, including Paracas and Punta San Juan de Marcona. IMARPE may also assist in improving the definition of species protected under CITES.

Peru's indigenous communities, including the "native communities" in the jungle and the "peasant communities" in the highlands and coastal region are the objects of policies coordinated by the Office of Indigenous Peoples (OPI) of the Ministry for the Promotion of Women and Human Development (PROMUDEH) created in 1996. OPI replaces the jurisdiction of the former Peruvian Indigenous Institute (IIP) within the framework of the 1940 Patzcuaro Convention on Indigenous Peoples to which Peru is a party. This relationship is of importance to the activity, since many of Peru's protected areas are inhabited by indigenous peoples.

Another autonomous agency that addresses the human rights concerns of indigenous peoples is the Ombudsman's or Public Defender's Office. Within the Ombudsman's Office there is a Special Project for Indigenous Peoples.

Local governments should also play an important role in planning for the conservation and management of Peru's biological diversity and forests.

1.2 Other Donors

A number of multilateral donors are active in biodiversity and forest conservation in Peru today. In addition to the World Bank's GEF support of the FONANPE, the Inter-American Development Bank (IDB) provided institutional strengthening support to CONAM in a recently concluded \$1.8 million program. IDB's current areas of cooperation include agrotechnology and the environment, water resources, and indigenous communities, notably an \$850,000 program for Mining Pollution Control in the Mantaro Valley of the central Peruvian highlands.

The United Nations Development Program (UNDP) now assists CONAM in the development of the CTM and CTMRs, among other focused interventions. The Food and Agriculture Organization (FAO), long active in promoting forest management activities throughout Peru, is currently supporting local watershed management projects, principally with Dutch support, as well as programs addressing poverty, nutrition, and food security. The International Tropical Timber Organization (ITTO) is currently supporting nine forestry projects in Peru through INRENA and the National Program for Watershed Management (PRONAMACHCS).

In recent years, USAID has supported through the Central Selva Resource Management Project, the creation of the Yanachaga-Chemillen National Park, the San Matias-San Carlos Protection Forest and the Yanesha Communal Reserve and the natural forest management program through the Yanesha Forestry Cooperative in the Palcazu Valley of Pasco Department. USAID/Washington's Latin America and the Caribbean Bureau has been supporting the Yanachaga-Chemillen National Park through its Parks in Peril program with TNC.

Chart 1. Local Governments in Potential BIOFOR Site Areas

Area	Departments	Provinces	Districts	Capitals
Madre de Dios	Madre de Dios	Tambopata	Inambari	Mazuko
			Laberinto	Laberinto
			Las Piedras	Planchón
			Tambopata	Puerto Maldonado
			Madre de Dios	Boca Colorado
			Coasa	Coasa
			Huata	Huata
			San Gabán	San Gabán
			Phara	Phara
			San Juan del Oro	San Juan del Oro
Manu	Cusco	Calca	Lares	Lares
			Echarate	Echarate
			Challabamba	Challabamba
			Kcosñipata	Pilcopata
			Fitzcarrald	Boca Manu
			Manu	Salvación
Ica Coast	Ica	Ica	Ica	Ica
			Salas	Guadalupe
			Santiago	Santiago
			Subtanjalla	Subtanjalla
			Changuillo	Changuillo
			Marcona	San Juan
			Paracas	Paracas
			San Andrés	San Andrés
Tingo Maria	Huáran	Leoncio Prado	Mariano Dámaso Beraún	Tingo María
Huascarán	Ancash	Asunción	Acochaca	Acochaca
			Chacas	Chacas
			Aquia	Aquia
			Aco	San Miguel
			Carhuaz	Carhuaz
			Marcará	Marcará
		Huaraz	Shilla	Shilla
			Huaraz	Huaraz
			Independencia	Independencia
			Olleros	Janqua
			Tarica	Tarica
			Huántar	Chavin
		Huari	Huari	Huari
			San Marcos	San Marcos
			Caraz	Caraz
		Huaylas	Santa Cruz	Huaripampa
			Yuracmarca	Yuracmara

Area	Departments	Provinces	Districts	Capitals
Biabo Cordillera	Loreto	Mcal. Luzurriaga	Llumpa	Llumpa
		Pomabamba	Lucma	Lucma
			Huari	Huari
			Huayllán	Huayllán
			Pomabamba	Pomabamba
		Recuay	Catac	Catac
			Recuay	Recuay
			Ticapampa	Ticapampa
		Yungay	Mancos	Mancos
			Ranrahirca	Ranrahirca
			Yanama	Yanama
			Yungay	Yungay
		Ucayali	Contamana	Contamana
			Inahuaya	Inahuaya
			Padre Máquiez	Tinuntán
			Pampa Hermosa	Pampa Hermosa
			Sarayacu	Dos de Mayo
			Vargas Guerra	Orellana
	San Martin	Mariscal Cáceres	Huicungo	Huicungo
			Juanjui	Juanjui
			Pachiza	Pachiza
			Pajarillo	Pajarillo
	Ucayali	Padre Abad	Aguaytia	Aguaytia
			San Alejandro	San Alejandro
		Coronel Portillo	Yarinacocha	Puerto Callao
			Callería	Pucallpa
Río Abiseo	La Libertad	Pataz	Buldibuyo	Buldibuyo
			Parcoy	Parcoy
			Pataz	Pataz
			Piás	Piás
	San Martin	Mariscal Cáceres	Huicungo	Huicungo
			Juanjui	Juanjui
			Pachiza	Pachiza
			Pajarillo	Pajarillo
Pacaya-Samiria	Loreto	Alto Amazonas	Lagunas	Lagunas
			Santa Cruz	Santa Cruz
			Tte. César López	Tte. César López
			Rojas	Rojas
			Yurimaguas	Yurimaguas
			Nauta	Nauta
		Loreto	Parinari	Parinari
			Capelo	Flor de Punga
		Requena	Emilo San Martin	Tamaneco
			Maquía	Santa Isabel
			Puinahua	Breñaña
			Requena	Requena

Area	Departments	Provinces	Districts	Capitals
Northwest Biosphere Reserve	Piura	Sullana	Lancones	Lancones
			Marcavelica	Marcavelica
			Pariñas	Pariñas
	Tumbes	Contralmirante Villar	Casitas	Cañaveral
Manglares de Tumbes			Pampas del Hospital	Pampas del Hospital
			San Jacinto	San Jacinto
		Tumbes	Tumbes	Tumbes
	Tumbes	Zarumilla	Aguas Verdes	Aguas Verdes
Calipuy NR and Calipuy NS Pantanos de Villa			Puerto Pizarro	Puerto Pizarro
	La Libertad	Trujillo	Viru	Trujillo
		Santiago de Chuco	Santiago de Chuco	Sanitago de Chuco
	Lima	Lima	Chorrillos	Chorrillos

Chart 2. Other Donors for Biodiversity Conservation in Potential BIOFOR Areas

Source	Areas	Years	From	Contribution {US\$}	Implementor
Germany(GTZ)	Paracas	1	1997	303,030	INRENA
	SINANPE	5	1993	440,000	INRENA
USAI D/TNC	Pacaya-Samiria	5	1993	5,000,000	ProNaturaleza
	Madre de Dios	5	1993	600,000	ProNaturaleza
Holland	Tumbes	5	1995	975,900	ProNaturaleza
	Madre de Dios	5	1997	1,345,541	CI
WWF-Denmark	Pacaya-Samiria	2	1997	800,000	WWF-AI F
WWF-Sweden	Northwest	2	1995	400,000	ProNaturaleza
WWF-UK	Manu	1	1997	25,812	ProNaturaleza
	Northwest	2	1997	200,000	ProNaturaleza
	Rio Abiseo	1	1997	19,320	ProNaturaleza
WWF-UK-DFiD	Manu	5	1994	357,047	APECO
Arnhold Foundation	Madre de Dios	4	1997	100,000	CI
MacArthur Foundation	Madre de Dios	1	1997	30,000	Rainforest Exp.
	Madre de Dios	5	1993	140,000	ACSS
	Madre de Dios	5	1993	130,000	FADEMAD
	Madre de Dios	3	1997	110,000	CANDELA-Peru
	Madre de Dios	4	1997	130,000	CI
World Bank-GEF/UNDP	Titicaca	5	1997	4,000,000	INRENA/Bolivia
European Union	Manu	5	1997	9,000,000	INRENA, Inka Region

Source: INRENA: Informe Nacional de Diversidad Biologic

Additionally, USAID/Peru supported the Environment and Natural Resources Sustainability Project in the Pacaya-Samiria National Reserve, also through TNC and its local counterpart, ProNaturaleza.

Additionally, the Smithsonian Institution has been supporting the BIOLAT program for documentation of biological diversity in the Manu National Park and Biosphere Reserve.

The principal bilateral donors, in addition to USAID, are now the European Union (EU), Germans (GTZ), and Dutch. The E is currently supporting a major integrated program of support to the Manu National Park and Biosphere Reserve (MBR) in Madre de Dios and Cusco over five years with a budget of 7 million ECUs. GTZ supports the Strengthening of the System of Natural Protected Areas (FANPE) Project, being carried out with INRENA's DGANPFS and PROFONANPE. In addition, GTZ is providing short-term infrastructure and organization support to the Paracas National Reserve, the Huascarán National Park, and the Ampay National Sanctuary.

The Dutch are supporting activities in support of the Huascarán National Park through The Mountain Institute, reforestation via INRENA in the Pantanos de Villa area in Lima, infrastructure interventions in the Lachay National Reserve in Lima Province, scientific research in the Rio Abiseo National Park through APECO, and the Tambopata Sustainable Development and Conservation Program (PRODESCOT) in the Tambopata-Candamo Reserved Zone and Bahuaja-Sonene National Park through Conservation International.

1.3 Private Sector Institutions

The principal USPVOs active in the conservation of biological diversity and forest management in Peru are the Worldwide Fund for Nature (WWF), The Nature Conservancy (TNC), Conservation International (CI), The Mountain Institute (TMI), Wildlife Conservation International (WCI), and CARE. Others, whose activities are relevant to this Activity, include Private Agencies Cooperating Together (PACT), Pathfinder, the Population Council, and Winrock Institute, currently implementing components of other USAID-funded activities in Peru.

WWF has had a program office in Lima since 1993 and activities in the country for nearly three decades. Although previously it only channeled its activities through Peruvian NGOs, it now also conducts direct conservation interventions in priority ecoregions. Among its currently proposed activities is one of promoting voluntary forest management certification. WWF is already actively supporting biodiversity conservation activities in the Pacaya-Samiria National Reserve (PSNR), the Manu Biosphere Reserve (MBR), the Paracas National Reserve (PNR), the Rio Abiseo National Park (RANP), the Ampay National Sanctuary (ANS), and the Northwest National Reserve and Biosphere Reserve (NWNR). Its program also includes strengthening local NGOs and working with local communities in planning for the management of key threatened ecosystems, including those not under formal protection.

Chart 3. Principal CBOs Active in BIOFOR Sites

Sites	CBOs	Activities
Huascaran	2 provincial federations of peasant communities	peasant rights, prices
Huascaran	Federacion Agraria Departamental de Ancash (FADA)	peasant rights, prices
Huascaran	Peruvian Association of Mountain Guides	tourist guide services
Madre de Dios, Manu	Madre de Dios Departamental Agrarian Federation (FADEMAD)	farmers' rights, agroforestry
Madre de Dios, Manu	Madre de Dios Native Federation (FENAMAD)	indigenous rights
Madre de Dios, Manu	Comite de Turismo Madre de Dios	tourism planning
Paracas	Comite de Damas de Laguna Grande	mother-child care
Paracas	Sindicato de Pescadores y Extractores de Mariscos de Comatrama - Base Laguna Grande	shell fishing
Paracas	Sindicato Unico de Extractores de Mariscos de Laguna Grande-Pisco	shell fishing
Paracas	Comite Local de Apoyo a la Reserva Nacional de Paracas	protected area planning
Paracas	Comite Local de Desarrollo RNPS (COREPASA)	protected area planning and monitoring
Pacaya-Samiria	AIDECOS	indigenous rights
Pacaya-Samiria	AIDESAM	indigenous rights
Pacaya-Samiria	Centros de Conservacion y Desarrollo (CECODES)	protected area planning and monitoring
Tumbes	11 shellfishing associations	shell fishing
Manu	Consejo Harakmbut (COHAR)	indigenous rights
Manu	Urubamba River Machigunega Council (COMARU)	indigenous rights
Manu	Yine Yami Native Communities Federation (FECONAYY)	indigenous rights
Manu	Machiguenga Native Communities Central Organization (CECONAMA)	indigenous rights
Manu	Comite Local de Apoyo al Parque Nacional del Manu y de Gestion de la Reserva de Biosfera	protected area planning
Pantanos de Villa	Comision Coordinadora para Defensa de los Pantanos de Villa	defense of protected area
Tingo Maria	Committee in Support of the Tingo Marla National Park (COPANATIMA)	protected area planning
Tingo Maria	Central Committee for the Development of the Las Pavas Valley (COCEDMIPA)	rural development
Rio Abiseo	Centro de Desarrollo Comunal Fenolén (CEDECO)	watershed management agroecology, bee keeping
Rio Abiseo	Federacion Agraria Selva Maestra (FASMA)	farmers' rights, prices
Rio Abiseo	Asociacion Civil Clubes de Madres Provincia Mariscal Caceres	gardening, reforestation, small fowl
Rio Abiseo	Comité de Pequerzios Productores Ganaderos Buldibuyo	cattle raising
Titicaca	Federacion Provincial de Comunidades Campesinas de Huancané	peasant rights, prices
Titicaca	Federacion Departamental de Comunidades Campesinas de Puno	peasant rights, prices
Biabo	Federacion de Comunidades Nativas del Bajo Urubamba (FECONBU)	indigenous rights
Biabo	Federacion de Comunidades Cacataibo (FEDECOCA)	indigenous rights

Chart 4. Potential PVOs and NGO Partners in Potential BIOFOR Site Areas

USPVOs	Areas of Activity	Activities
CARE Conservation International (CI) Pathfinder Population Council Private Agencies Cooperating Together (PACT) The Mountain Institute (TMI) The Nature Conservatory (TNC) Wildlife Conservation International (WCI) Winrock Institute Worldwide Fund for Nature (WWF)	Pacaya-Samiria Madre de Dios national national national Huascan Madre de Dios Pacaya-Samiria Paracas Madre de Dios Tingo Maria Manu Paracas Rio Abiseo Pacaya-Samiria	rural development conservation health health, environment Training conservation rural development Conservation conservation, research rural development conservation
National NGOs		
Asociación Penuana de Conservación de la Naturaleza (APECO) Centro Amazonico de Antropologia y Aplicacion Practica (CAAAP) Centro de Investigación y Promoción Amazonica (CIPA) Centro de Promoción y Oesamollo (DESCO) Centro de Promoción y Desarrollo Sodai (CEPES) Centro Regional Bartolome de Las Casas (CERA Las Casas) Fundación Peruana de Conservación de la Naturaleza (ProNaturaleza) Instituto para el Desarrollo y Medio Ambiente (IOMA) Proterra Sociedad Penuana de Derer ho Ambiental (SPDA)	national national national national national national national national national national	conservation, environmental education indigenous peoples, Amazon Basin indigenous peoples research, community development research on rural Peru, community development research, history, economics conservation environment conservation, environmental law environmental law, policy
National networks (redes)		
Ecological Agriculture Network (RAE) Ecological Forum (Foro Ecológico) Environmental Network (RAP) Forestry Network (REDFOR) Network for Alternatives to Agricultural Pesticides (RAAA)	national national national national national	ecological agriculture environmental umbrella organization conservation forestry organic agriculture
Regional NGO's		
Asociación AgroEcologica Asociación on para la Ninez y La Conservación (AN ICMA) Asociación Uripichallay Asociación Wanamey Asociación para la Conservación de la Selva Sur (ACSS) CEDEP Centro de Ecología Andina (CEA) Centro de Ingeniería para el Desarrollo (CIPDEL) Centro Eon de Investigación y Promoción Regional Centro para el Desarrollo del Indígena Amazonico (CEDIA) CANDELA PERU IDEA-Chavin IDEA-Chavin Instituto para el Desarrollo de las Zonas Oprimidas (INDEZOD) IPID-Ancash Proyecto Especial para la Vida y el Trabajo (PREVIT) Tambopata Reserve Society (TReeS) Vías de Acción para el Desarrollo Armónico (Asociación VIDA)	Madre de Dios Madre de Dios Huascan Madre de Dios Madre de Dios, Manu Huascan, Huascan Madre de Dios Madre de Dios, Manu Manu Madre de Dios Madre de Dios Madre de Dios Huascan Huascan Madre de Dios Madre de Dios Huascan Huascan Madre de Dios Madre de Dios Huascan	agroforestry, soil recovery children's education, environment education, environment environment Promoting ecotourism organic agriculture, camelids soil conservation microenterprises, credit indigenous rights, conservation, rural development, research land titling marketing Brazil nuts rural development soil conservation livestock raising, productive infrastructure agriculture, livestock raising coffee cooperatives research, conservation, community development rural development

TNC has been active in Peru since the early 1980s through its local partner, the Peruvian Foundation for the Conservation of Nature (ProNaturaleza). Its areas of activity in the conservation of biological diversity include the PSNR, the Bahuaja-Sonene National Park (BSNP) and the Yanachaga-Chemillen National Park (YCNP), the latter two under the LAC Parks in Peril (PiP) program. TNC has a proposal pending to include the PNR as a PiP site. The Mission's Environment and Natural Resource Sustainability (ENRS) Activity in the Pacaya-Samiria National Reserve was implemented through a cooperative agreement with TNC.

CI has had a presence in Peru since 1991 when it began its program in the Tambopata-Candamo Reserved Zone (TCRZ) that led to the creation of the BSNP in 1996. Other areas where CI has been conducting research and proposals for the conservation of biological diversity are the Apurimac Reserved Zone (ARZ) and the Cordillera del Condor area on the Ecuadorian border.

TMI is currently working in the Huascaran National Park (HNP) area under a grant from the USAID Bureau of Humanitarian Relief, Private Voluntary Cooperation program. It has fostered an agreement among the principal tour operators in that area on a Tourism Management Plan and also helped forge a consortium of locally active NGOs, the Chavin Consortium, to coordinate their separate interventions there. Moreover, TMI has led an apparently successful effort to keep a Canadian consortium from expanding a road across the HNP to service a major polymetallic mine outside the Park.

WCI has been supporting conservation activities in the southern jungle, principally in the MBR and the BSNP/TCRZ. It works mainly through local NGOs, including the Cusco-based Association for the Conservation of the Southern Jungles (ACSS) and others; it also supports individual researchers. CARE is currently conducting its Selva Project in the northern jungle Department of Loreto and will soon begin implementation of a SENREM pilot project for fish management in and around the Tamshiyacu-Tahuaya Communal Reserve in the same area.

Peru's indigenous NGO community involved in biodiversity conservation and forestry is numerous and diverse. Among the most active Peruvian NGOs on a national level are the Peruvian Foundation for the Conservation of Nature (ProNaturaleza), the Peruvian Association for the Conservation of Nature (APECO), the Peruvian Environmental Law Society (SPDA), the Institute for Development and the Environment (IDMA), ProTerra, and many smaller and more locally-focused organizations. Most of these are grouped in the Peruvian Environmental Network (RAP), which in turn is affiliated with the Foro Ecologico, and umbrella organization of environmental NGOs. There are also numerous regionally-based NGOs in and near many of the areas under consideration for site intervention that could easily become involved in Activity interventions in their areas of experience and expertise. Most have limited planning, management, and monitoring capabilities and modest budgets.

Chart 5. Businesses Active in BIOFOR Site Areas

Sites	Businesses	Nature of Activities
Huascarán	Compañía Minera Antamina S. A.	gold mining
Huascarán	Compañía Minera Barrick S. A.	gold mining
Madre de Dios	Peruvian Safaris, S. A.	tourism
Madre de Dios	Tambopata Jungle Lodge	tourism
Madre de Dios	Rainforest Expeditions, S. A.	tourism
Madre de Dios	Cusco Amazónico Lodge	tourism
Madre de Dios	Sachavacayoc Lodge	tourism
Madre de Dios	Tambo Lodge	tourism
Madre de Dios	Wasai Lodge	tourism
Madre de Dios	Mejía Lodge	tourism
Madre de Dios	Sandoval Lake Lodge	tourism
Madre de Dios	Ecoamazonía and Guesthouse	tourism
Madre de Dios	seven small family-run guesthouses	tourism
Madre de Dios	Mobil Exploration and Producing Peru Inc. (MEPPI)	oil and gas
Paracas	Quimica del Pacifico	caustic soda
Paracas	Paracas Hotel	tourism
Paracas	Marisur	shellfish
Paracas	Polisur	shellfish
Paracas	Pesquera San Andrés	shellfish
Paracas	San Antonio, S. A.	fish meal
Paracas	PRISCO, S. A.	fish meal
Paracas	Diamante, S. A.	fish meal
Paracas	Malla, S. A.	fish meal
Paracas	SIPESA, S. A.	fish meal
Paracas	EPESCA, S. A.	fish meal
Paracas	Austral, S. A.	fish meal
Paracas	CERPER, S. A.	fish meal
Paracas	PESCAPERU, S. A.	fish meal
Paracas	various small shellfishing companies	shellfish
Manu	Shell Producing and Development, Peru	natural gas
Manu	Chevron	oil and gas
Manu	Amazonas Lodge	tourism
Manu	Erika Lodge	tourism
Manu	Pantiacolla Lodge	tourism
Manu	Manu Wildlife Center	tourism
Manu	Parrot Inn/Blanquillo Centre	tourism
Manu	Manu Nature Tours	tourism
Manu	Inka Natura, S. A.	tourism
Manu	Cocha Salvador Lodge	tourism
Pantanos deVilla	Empresa Molinera Luchetti S. A.	noodles factory
Rio Abiseo	Empresa Minera Aurifera Retama S. A.	gold mining
Rio Abiseo	Empresa Minera Ponderosa, S. A.	gold mining
Rio Abiseo	Consorcio Minero Horizonte	gold mining

BIOFOR should involve locally active businesses in its activities to the extent possible. Among

BIOFOR should involve locally active businesses in its activities to the extent possible. Among those likely to be supportive are the oil companies working in exploration activities in Peru. Shell, Mobil, and Chevron have demonstrated great sensitivity and support for environmental interventions that improve or diminish threats to the natural environment. Such policies help their image and may reduce costs for corrective measures later on for these companies. Mining companies, such as Antamina are also beginning to assume a level of environmental consciousness that may facilitate their involvement as potential partners, at least in planning efforts. Tourism companies have long been supporters of biodiversity conservation from their own business perspectives. Chart 5 shows the principal businesses that are active in potential BIOFOR site intervention areas.

1.4 Institutional Capabilities, Limitations, and Opportunities

CONAM has an important capability for coordination among the different economic sectors at the Ministerial level, complemented by its program for implementing the CTMRs on a regional basis to further that inter-sectoral coordination in a more decentralized fashion. The first two CTMRs have already been established, in Cusco and Madre de Dios. This capability will be essential in overcoming the serious limitations imposed by extreme sectorization and decentralization of public functions in Peru, including those related to the conservation and management of biological diversity and forests. Moreover, the recent approval of CONAM's Organization and Functions Regulation and its internal approval of the Framework for Environmental Management (MEGA), as well as a three-year work plan place it in a better position than before for providing the necessary inter-institutional coordination for environmental management.

CONAM's principal limitation is its limited authority, infrastructure, staff, and executive capability. It has received some institutional strengthening support from USAID's SENREM Activity, from an IDB program, and now the UNDP for the establishment of the CTMR. CONAM's involvement in the BIOFOR Activity provides an opportunity for involving other sectors in a coordinated effort at the conservation and sustainable management of biological diversity and forests, even though these are relatively low priorities for CONAM. It will also be necessary to involve INRENA and overcome jurisdictional tensions between these two GoP agencies.

INRENA has long experience in managing protected areas and forests. However, it has also had a long history of administrative shuffling of functions and responsibilities, at times apparently inspired by partisan political considerations. Its recent return to the MAG consolidates its earlier structural relationships, but leaves on hold possibilities for stronger and more coherent inter-sectoral coordination. INRENA's new leadership offers prospects for sounder management and improved conditions coordination with donor organizations like USAID.

However, there are significant gaps in the legal and policy framework that limit or hinder Peru's full compliance with 1992 Conventions on Biological Diversity and Climate Change, as well as with the CITES and Ramsar Conventions on Trade in Endangered Species and Wetlands

Conservation, and the International Tropical Timber Agreement (ITTA). The greatest of these is the lack of coherent norms and policies for forest management. Similarly, the Natural Protected Areas Law and the Law for the Sustainable Use of Natural Resources still lack implementation regulations.

One of the most important opportunities presented in the 1997 legislation involving INRENA is the new commitment to bring local communities and other interested parties into the planning process for protected area management through the Local Management Committees. Local management committees already exist in and around a few of the protected areas, most notably the Manu National Park and Biosphere Reserve (MBR) and the Paracas National Reserve (PNR). There are also important participatory experiences in the Tambopata-Candamo Reserved Zone (TCRZ), Huascarán National Park, (HNP) and the Pacaya-Samiria National Reserve (PSNR).

Community-based organizations (CBOs) in and near the areas proposed for site-based interventions are diverse, with varied experiences in program and financial management. However, these are precisely the institutions that can lend most to ensuring sustainable results after USAID funding ceases. Since they were created by the local populations that live and will remain active in these key areas, use the natural resources there, and know the terrain and the actors well, they can best respond to their own and other local needs by assuming greater authority and ownership of Activity planning and interventions.

However, the CBOs present in these areas will need substantial training in strategic planning, financial and program management, and stakeholder synergy building to become more successful and attaining their own goals and objectives. Some, like the Madre de Dios Departmental Agrarian Federation (FADEMAD) and the Madre de Dios Native Federation (FENAMAD), have already obtained funding directly and are currently carrying out important activities related to the conservation and management of biological diversity and forests. Others are smaller, weaker and less experienced. All could benefit from strategic planning training and efforts to improve their management style, expand membership participation in decision making, and building alliances with other organizations having common goals.

Isolated rural communities, lacking basic services and access to commercial credit, have little capability for entering into a highly competitive market economy. Thus, they constitute threats to the health of biological diversity and forests around them, since these are more accessible to them than to urban communities. Opportunities for institutional strengthening among CBOs in site intervention areas are closely related to their possibilities for satisfying their basic needs without unsustainable natural resource use.

NGO capabilities are similarly diverse. It is useful to distinguish between national NGOs having a thematic interest, usually related to research on natural resource and environmental economics, environmental legislation, environmental impact assessments, and biodiversity valuation and regional or local NGOs, whose principal strength is the capability for convocation of local communities and other interested parties, as well as longer experience in dealing with the INRENA (Glave 1995).

Few NGOs have undergone processes of "re-engineering" to develop strategic plans of action, clear mission and vision statements, or even comprehensive and adequate financial management systems. Another limitation is that of institutional jealousies and turf battles. To overcome these tendencies, the training called for in this Activity, including approaches such, as Future Search and Appreciative Inquiry should prove be useful.

Additionally, some NGOs whose initial purpose was the protection of biological diversity have had little training and experience in rural development efforts that might assuage pressures on biological diversity and forests by local communities. Similarly, NGOs that began with a rural development perspective have often not fully understood the importance of conservation of biological diversity and forests; they tend to adopt the rhetoric but have difficulty assuming the challenge. Other NGOs working in rural areas are comprised mainly of men who have not fully understood or assumed a gender sensitive perspective on natural resource conservation and management.

In spite of these limitations, the advantage of working with CBOs and local NGOs lies in their strengths. To overcome the limitations, institutional strengthening, including the kinds of training contemplated in this Activity will be essential to ensure success and at least programmatic sustainability after USAID funding ceases.

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Annex D

Socio-economic Analysis

Annex E

Gender Analysis

1. The Role of Women in Biodiversity and Fragile Ecosystems Conservation and Management

In Peruvian society the roles of women are varied and complex. That variety and complexity is exaggerated in diverse natural environments. Thus, a fundamental condition for a successful gender-based program is to have on hand extensive knowledge and a clear understanding of the particular geographic, economic, political and sociocultural context. There are general guidelines based on gender that call for development, change, and empowerment of women. Nonetheless, many conservation and development interventions have failed to take into account the geographic, economic, political, and sociocultural variables, and the results have been a deterioration in women's condition, increasing their work load, isolating them from political leadership roles, and denying the importance of their reproductive and community affairs roles.

Market features and distance are critical factors underlying the potential success or failure of productive activities that seek to support social and/or gender equity. Efforts to promote gender equity should start with productive activities that women are already engaged in. Many of these lack significant economic impact, because they fail to develop capabilities for market production that involve less physical effort. Frequently, men who propose projects for women assume that the women have plenty of time and can assume a greater burden of work. But women's work is complex, usually lacking adequate technology to simplify tasks. Women's production should be considered in the context of possible alternative markets.

In the six areas proposed for BIOFOR site-based interventions, women have an active role in the use of biological diversity and other natural resources but limited access to the economic benefits that can be obtained from them. A focus on gender brings to light the manifest discrimination in modern relations of production in these areas and in Peru and developing countries generally. That situation polarizes and divides the genders and exaggerates the differences in their relative economic circumstances in ways that are expressed through cultural mechanisms. Thus, in an increasingly monetized economy dominated by men, alternatives that value women, their potential, and their role in society, are essential.

The BIOFOR intervention sites are rural, although there are some urban spaces in Paracas and the area around Huascarán National Park, as well as urban and market centers articulated to all six of these areas. In each, poverty is universal and women are on the margins of the market for the majority of their activities, in spite of very heavy work loads. Most of their work is related to the subsistence economy as small-scale unskilled producers. Such work allows them to meet the essentials for their families' subsistence, but little participation in the market. Those women who market their production directly are subject to speculation and unfavorable market conditions, like all rural producers.

Women in these areas utilize biodiversity and forest resources to cover their families' subsistence needs first and produce handicrafts, cash crops, livestock, or non-timber forest products in a second order of priority. They are cultivators, herders, gatherers of wild plants, fishers and artisans. Few of their activities that use biodiversity and forest resources generate incomes, although there is some variation from one area to another. Those most articulated to the market are the women in the Paracas area, some of the peasant women in the Callejón de Huaylas near Huascarán, the vegetable producers in the Río Abiseo area, Brazil nut collectors and shellers in Madre de Dios, and women who sell native products such as palm fruits and handicrafts made from vines and other jungle plants in all four of the jungle areas.

Limited options for market production mean limited possibilities for favorable socio-economic circumstances in an increasingly market-oriented world. Few women directly market natural resources that are extracted by the men in their families. Ownership of cattle allows some women to make cheese for sale. Shearing sheep increases the family economy from the sale of wool or weaving items of clothing that are used as well as sold. Raising chickens, ducks, or pigs, allows women direct economic benefits; these animals may be used in barter as well as for market exchange. Usually, men do not raise these animals, although they do sell them. In Madre de Dios women play a major role in Brazil nut production, but few women market them.

Indigenous women on the whole have greater knowledge of their natural environment than do more recent migrants to their areas. This traditional knowledge includes a concrete inventory of species, their usefulness, and ways of using them, but it also allows them a better quality of life than recent migrants living under the same conditions. Indigenous knowledge can be an important means to improvement of standards of living or other aspects of the quality of life.

However, such knowledge cannot be simply catalogued and valued on the market. It must be understood in the context of traditional relations of production. Traditional peoples organize their productive activities according to shared and complementary relationships among the genders and age groups. Thus, efforts to market or otherwise derive economic advantage from traditional knowledge must also reproduce traditional forms of productive relationships or generate similar functionally analogous forms, if the innovative use of their traditional knowledge is to serve them directly and not just outsiders.

Among indigenous populations of the world, gender relations are seen as complementary, although not symmetrical (Perrin and Perruchon 1997). Most tropical forest Indian societies, prior to their adaptations to Western society and its market, came close what Leacock (1978) classifies as "egalitarian" societies, in which the direct relationship between production and consumption results in a differentiation of authority but relatively equal power between men and women. Women in such societies "have their own rights, obligations, and responsibilities, which are complementary, but by no means secondary, to those of men." Market relations, however, have distorted traditional complementarity in such societies and produced much more unequal, even dependent relationships between men and women.

Traditionally, money played little role within rural communities, particularly indigenous communities. Now, however, rural families, particularly women, have a universal and compelling need for money to assume their responsibilities for school expenses, commercial medicines, and new consumer habits. These new needs condition the use of natural resources to cover such monetary needs. An important part of women's monetary income is used to satisfy these needs.

Even when the principal community production, such as timber, is decided on by men and male communal authorities, the sale of such products becomes the easiest solution to family monetary needs. Women and other family members participate actively in the other kinds of forest production and fishing, but their production is usually marketed by men.

However, when forest production or fishing are restricted, as in the case of most protected areas, income from these productive options is similarly limited, and family needs suffer at the expense of individual needs. Such restrictions are understandable from the perspective of wildlife conservation needs. Market pressures on forest and river resources threaten their abundance and continued existence, and there are increasingly fewer of these resources to take advantage of. However, from the perspective of women and their families, such restrictions threaten their families' socio-economic situation and generate resentment and opposition to conservation measures.

When credit becomes available in rural areas, even on a restricted basis, it tends to be used to cover basic needs rather than to stimulate the productive apparatus. This situation generates family tensions, as well as acute difficulties among the debtors, especially when the potential resources available to satisfy the debts are those that should be protected or restricted in the interest of their conservation in and near protected areas. Usually, men obtain the credits and are legally responsible for their repayment, based on the cultural biases and criteria of the society at large. When there is urgency to generate cash to repay loans, women and children are often required to neglect their subsistence production activities, such as horticulture, small animal raising, and handicrafts, to assist the men in producing marketable products, such as timber or fish, in order to repay the credits. This situation, in turn, threatens nutrition and other aspects of family welfare.

In traditional rural societies women's generational behavior regarding handicrafts has varied. Even fewer men make handicrafts, and these are mainly ritual expressions related to fishing and hunting. Two or three decades ago, handicrafts were made on a daily basis in most jungle indigenous societies. Today they are almost exclusively made by women over 30 years old who have no responsibilities for the care of small children and who are motivated by neighbors or friends to sell their work. Older women retain the practices of making handicrafts; they are helped by younger women in their families in the gathering of raw materials. To locate increasingly scarce and distant raw materials, such as tamshi, they must walk for many hours. The technology used is quite rudimentary, and even simple tools now cost money. The prices they obtain for their products do not take into account the time invested in gathering these natural raw materials nor the ability required to transform them; even so, it is an activity that means some money for them.

Younger women are less attracted to handicrafts, since they feel it requires much effort for little gain. Indeed, the marketing of Peruvian handicrafts from the highlands or jungle is limited to street vendors and a few exporters who control access to the foreign markets. Moreover, there are intermediaries who absorb the greatest part of any profit derived from the sale of these products.

Although experience in the implementation of proposals for the management of natural resources with a gender perspective is scarce, there are a few useful tools based on Latin American experiences. For example, the Management of Ecosystems and Resources with a Gender Emphasis (MERGE) program at the University of Florida has developed an interesting systematization for conservation programs with a gender focus, based on seven principles that express the importance of community participation and gender equity for the sustainability of conservation interventions (Schmink 1996). This document reviews some aspects of gender involvement in the care and management of natural resources in past and on-going experiences of governmental and non-governmental organizations. It makes clear that the incorporation of gender variables in projects that seek to conserve biological diversity is still incipient or, in most cases, non-existent.

The seven principles established by the MERGE analysis are the following:

- The potential for community-based conservation is conditioned by historical, ecological, socio-economic, and political factors of different scales;
- The management and conservation of natural resources involves direct and indirect negotiations with many different groups with different levels and forms of power whose interests are often in conflict;
- The participation of different interest groups within local communities is necessary for attaining conservation with social equity;
- Gender relationships differentiate among the knowledge, use, access, control, and impact that men and women have over natural resources and ecosystems, as well as their attitudes regarding their conservation;
- Initiatives based on a gender focus and other strategies for empowering local groups will be more successful and equitable;
- The participation of different groups interested in learning processes based on gender that encourage hands-on practical learning and critical thought improve the capabilities of the local groups to negotiate their interests in conservation;
- In the long run, conservation will be successful if training of the interested groups is accompanied by strategies for institutional change and collaborative efforts that provide for research continuity, technical assistance, exchange, and other participatory activities with local communities.

The degree of ownership by the beneficiaries of conservation interventions is fundamental if we assume that people and their commitment to and appropriation of the behavior changes involved determines both their success and their sustainability. Underestimating the role of the beneficiaries and failing to take into account the different roles of men and women in conservation and the appropriate use of natural resources may lead to the failure of any project, even those that deploy vast technical and financial resources.

For these reasons, it will be important for potential BIOFOR counterparts to commit themselves to incorporate assessments by professionals having the training and experience in gender methodologies in order to ensure the success of activity interventions. Such assessments should determine the appropriateness of each intervention and its mode of implementation. Gender disaggregated baseline data should be recorded at a very early stage in BIOFOR implementation and monitoring during the life of the Activity. Given the high indices of illiteracy and low levels of formal education among the target populations, the data to be recorded should be analyzed by professionals having experience in gender matters among diverse cultures.

Site-based interventions should seek to accomplish the following tasks in order to ensure the desired results from a gender perspective:

- Ensure and strengthen the participation of local grass roots organizations, including women, with emphasis on those of peasant, indigenous, and fishing populations.
- Improve the quality of life of the local population by improving their management of their own natural resources.
- Empower the people and their organizations.
- Seek to raise the status of women visibly within their communities.
- Promote equity among men and women through joint participatory planning and decision making mechanisms in productive and reproductive tasks.

It will be important to strengthen environmental consciousness in areas of site-based interventions by providing sufficient and adequate information on the impacts on the lives of the local people themselves from environmental degradation, particularly as this affects the future availability of needed natural resources and ecological balance. Any initiative that seeks to protect and conserve natural resources requires a clear vision of their benefits to the local populations. It will be necessary to work with older people, as well as with children and young adults and ensure that the conservation vision is shared across age group and gender lines. Schools may provide a starting point for this process since environmental criteria have already been included in the public education curriculum, although often in environmentally inappropriate ways. For example, education programs provided in the jungle are often based on criteria designed for the coast and highlands and then transferred to the jungle.

1.1 The Gender Perspective

Conservation and development activities are often designed in a fragmented manner that adds on gender equity and local community participation considerations at the last minute. Frequently the different roles played by men and women among the intended beneficiaries are not given serious consideration. A gender perspective should not be considered to be one more component in an activity design, but rather a methodological approach that is necessary to attain integrated interventions.

The gender perspective should be seen at various levels:

- in political decisions regarding the management of natural resources;
- in the use of statistics and numbers that should be disaggregated by gender;
- in information systems and data bases, similarly;
- in training programs and research at all levels.

Women and the local community populations affected should be involved from the start in the planning for all BIOFOR interventions. Their participation should include discussion and explanations of the principles behind what is proposed. Training initiatives should focus on ways of raising women's self esteem. They should also address both the person of the women and their social and legal environment. Most will not know or fully understand the implications of living and working in or near protected areas. Explanations of that situation should seek to relate the women and other community members themselves to their natural environment and encourage their own planning from the perspective of their own interests.

APECO has conducted surveys that reveal that at least half of the population in and near the Río Abiseo National Park do not know the rules they should be following regarding natural resource use. Fishermen tend to respect those rules initially in order to obtain fishing licenses. Campaigns to develop environmental awareness are neither frequent or regular.

One of the most salient problems is that most of the people affected are pressed by urgent short term considerations that force them to see conservation measures as something distant and not directly related to them and their lives. Moreover, even when they do understand the importance and the to them of using natural resources based on their long term interests, they are often forced to act against those long term best interests by urgent short term needs that must be given priority.

The application of a gender analysis tends to create some important problems for both the cooperating institutions and the beneficiary population. Among these are:

- the expected results must be obtained in a short time span;
- the purpose of the cooperation effort more often than not responds more to the interests of the cooperating agency than to needs as perceived by the beneficiary population;
- attitudes are encouraged that are not of the highest priority for the beneficiary population but rather relate to the needs of the cooperation agency;

To avoid relegating women's needs and interests to secondary priority, BIOFOR should negotiate with the community-based organizations in a manner that seeks gender disaggregated responses. Also, from the start BIOFOR should evaluate women's needs as expressed by the women themselves and ensure that these are addressed in planning at every stage.

It is important to focus upon the spaces in which men and women move and conduct their day to day activities in order to understand their roles and the decisions they make. Women's roles are often less formalized. Rural organizations are often headed by men and the spaces where the women participate are often in secondary positions; in some cases they do not participate at all or only exceptionally within their representative organizations. This is true of the BIOFOR site intervention areas, where men dominate community organization space, although some women's organizations, like the mothers' clubs vary, with a majority giving priority to their survival strategy over empowerment options.

1.2 Women's Organizations

Women are at a disadvantage for self organization. Many underestimate their potential for this, since they consider organization as a matter for men. Men tend to consider women as inexperienced and lacking in the necessary knowledge and skills to run an organization. They are considered incapable of organizing new activities. Therefore, when they seek to organize spaces beyond their traditional spheres of influence, they may suffer aggressive behavior on the part of the men in their communities and pressure to discourage them from their initiatives.

Most women's organizations in Peru have arisen on the basis of outside influences, often with a particular political motive or encouraged by donor organizations as conditions for access to grants, and some have been promoted by the GoP. Women in such organizations use the space of the institutions where they work to further their own activities; usually, the women's organizations themselves have no headquarters.

GoP initiatives on a national level have encouraged the development of the National Women's Network (*Red Nacional de Promoción de la Mujer*), which is active on a local level in several of the BIOFOR site intervention areas. These organizations bring together female representatives from each of the public sector institutions and may become very useful mechanisms for promoting gender sensitive interventions in the conservation and management of biological diversity and fragile ecosystems.

The Ministry of Health trains men and women from rural communities as volunteer community health promoters to promote preventive health and sanitation measures in their communities. Women have assumed important roles in this program, particularly as midwives and providers of basic child health care. Only in exceptional cases does the Ministry of Health take into account the knowledge of popular culture to be disseminated as an alternative to commercial pharmaceuticals.

1.3 Proposals for Working with Women

BIOFOR's work with women should not be isolated from the family and community context. It should develop skills and self-confidence among the women and stimulate their involvement in community organizations, where they can make valuable contributions and gain appreciation.

Some of the best guidelines for an equitable gender perspective in community forestry and agroforestry activities have been developed by the Food and Agriculture Organization's Forests, Trees, and Peoples Program, FTTP (Hoskins, 1979; Rojas, 1994; Rojas 1995; Clarke, 1997). These stress restoring balance in field situations with a participatory focus. An assessment of progress with recommendations was made in an FTTP seminar held in Cuenca, Ecuador in 1995 (FTTP, 1996). That assessment proposed a multi-level strategy that, stressing a participation and transparency, seeks to avoid the confusion between the concepts "woman" and "gender", and to work in gender relations at the community level but also transcend the limitations of relatively isolated community perspectives with efforts to incorporate them in the discussion on levels of international cooperation and national policies.

Similar criteria may be applied to community level activities in biodiversity conservation. A good didactic manual for gender training for community development projects is the three volume Oxfam Gender Training Manual, which has been translated into Spanish by the NGO, Flora Tristán (Williams, Seed, and Mwau, 1997)

Stereotyped ideological barriers have a great influence on the images of men and women in their own communities. It may be necessary to create space for reflection on the nature of these images in order to change attitudes that inhibit gender equity. Given the heterogeneity of rural areas, it will be important to emphasize the differences in the concrete situation of local communities within each of the areas with regard to their environment as such (simple focus) and then in the context of the relations between men and women in these communities (complex and multilevel focus).

Working with natural resource use in communities alone will not help either with the integration of a gender perspective nor with the acceptance and success of such work in the communities. The application of a gender perspective must address the participation of women in decision making in a broader context, including education, health, and other important community needs where short-term benefits may be obtained to set the context of improvements in natural resource use.

In communities near natural protected areas, people are often skeptical toward proposals for natural resource management. Usually this skepticism reflects dissatisfaction with options that imply a greater work load and do not resolve the most immediate and important problems, but rather establish legal limitations on their activities. This is clearly the case in the Tambopata-Candamo Reserved Zone, where restrictions on forest extraction have generated a new focus on extraction of less profitable species, such as palmiche, and which involves both men and women in the weaving of roof thatch for the market. Legally all commercial forest extraction except Brazil nuts (since 1993) is banned within the Reserved Zone, but the controls focus only on timber. Alternatively, some local residents simply circumvent the controls and continue extracting timber.

Moreover, tourism in and near protected areas has generated resentment among the local populations, when they derive no significant economic benefit from such activities. Only a few selected families are able to market a small range of agricultural products to the lodges, and this pattern limits the traditional diversity and variety of their production. Local populations know they lack the necessary capital to develop tourism in their areas, but they do have natural resources and their labor. The inequality in productive relationships is exaggerated when the use of the natural resources and traditional activities involving local labor is restricted, while the influx of outside capital is not restricted nor does it generate a significant market for local labor.

In some of the BIOFOR intervention areas, there is an interest in developing alternative tourism packages for backpackers and other less formal tourists. Such activities are relatively simple from a business management standpoint and can involve women as well as men, as managers, guides, and artisans. Training for such niches would be necessary and should be adapted to the possibilities for using existing natural resources in a sustainable manner and for their benefit.

Brazil nut extraction, shelling, drying, and sorting has involved a large number of women in Madre de Dios for most of the 20th Century. However, the market for this product is likely to be reduced drastically, unless a solution to the aflatoxins problem can be found that will allow them to continue exports to European and other international markets. A useful BIOFOR intervention that could benefit women would be to help them develop processes and techniques for drying and classifying these nuts in a manner that would permit their export through organizations in which they could participate directly. There is already one NGO effort working on this issue in the area.

Another important and little known area for potential BIOFOR intervention is in the improvement of the diet by training in family vegetable gardens. The Peruvian Association for the Conservation of Nature (APECO) has developed an interesting experience of this sort in the buffer zone for the Río Abiseo National Park. Moreover, the training provided by AIDSEP to indigenous communities in the Pacaya-Samiria and Madre de Dios areas over the past decade has stimulated interest in improving knowledge of the management of small areas for family production and the recovery of soils and fallow lands. Also in Madre de Dios, the Madre de Dios Agrarian Federation (FADEMAD) has been working, specifically in the Tambopata area, to improve the management of local family plots through agroforestry. Such interventions are especially well adapted to the needs and habits of traditional local families.

Similarly, it will be important to rescue traditional knowledge of medicinal plants. Currently, there is a market for such products as *uña de gato* and *sangre de grado* but these are not managed in any sustainable fashion. Should such products be promoted in BIOFOR interventions, care must be taken to ensure that women benefit from the management and marketing of these products and not simply supply labor. This can best be done if the marketing is tied to their own use of these products in an organized fashion through local health committees or other community organizations. Moreover, by balancing community needs, with full participation in the decision making by women, the likelihood of sustainable management is greater.

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Annex F

Policy Analysis

1. Setting for Policy Improvements

1.1 Evolution of USAID Policy Assistance

Along with major long-term assistance in technology generation and transfer and related institutional strengthening, USAID historically has provided modest support to policy analysis and dialogue affecting conservation and management of renewable natural resources (RNR) in Peru. Until the 1990s, this support tended to be somewhat narrowly focused on improving policies related to sustainable RNR-based production and productivity improvement to increase incomes of poor rural populations dependent on agriculture, freshwater fisheries and forestry for their livelihood. Policy issues included those related to sustainable use of fragile ecosystems of the Amazon Basin.

From the early 1990s, USAID/Peru, with support from the Regional and Global bureaus, focused increasing attention on technologies and organizational structures for protection of biodiverse and fragile ecosystems, and on mechanisms to sustainably manage and regulate their economic utilization to avoid degradation and to increase incomes therefrom.

In the mid-1990's, with adoption of Strategic Objective 4 (SO4), e.g., "To Improve Environmental Management in Targeted Sectors", USAID/Peru consolidated and refocused its development assistance related to environmental and natural resources (ENR) issues. Selection of SO4 intermediate results (IRs) for both policy improvement and institutional strengthening signified a commitment to fund assistance activities designed to achieve comprehensive policy changes and more effective implementation (IR 4.5, complemented by IR 4.1).

The first major initiative by USAID to help achieve IRs 4.1 and 4.5 targeted primarily "brown" issues (SENREM Project, approved and initially funded in 1995). Under SENREM, policy-related public sector institutional strengthening efforts focused on the recently established National Environmental Council (CONAM) to facilitate development of national level strategies and a comprehensive policy framework for guiding policy improvements.

Modest efforts under SENREM to incorporate policy improvements and related institutional strengthening for RNR and fragile ecosystems have had limited success for reasons discussed below. At the same time, traditional USAID support to renewable natural resources conservation was phased out, except for limited activities in selected geographic areas in which the Alternative Development Strategic Objective program is working.

Approval of SENREM, as the flagship initiative under SO4, marked a departure from the historical USAID policy focus on sustainable productive uses of RNR to one aimed at abatement and prevention of pollution and contamination generated by human and industrial activities in urban and peri-urban areas. However, in early 1998, with approval of the "BIOFOR" Activity Concept Paper, USAID signaled a renewed commitment to provide assistance to activities that address RNR policy constraints and related institutional weaknesses, albeit limited to conservation and management of biodiverse and fragile ecosystems, especially in the Amazon Basin.

The remainder of this analysis will address Peru's policy and related institutional setting, constraints and opportunities directly and indirectly affecting RNR conservation and management, in general, and biodiversity and fragile ecosystems conservation and management, in particular.

1.2 Current Policy Setting in Peru

Experience in implementation of SENREM demonstrates that public sector institutional organization and structures, as well as formal and informal inter-institutional relationships, heavily influence both timeliness and appropriateness of ENR policy formulation as well as policy implementation. Thus, this analysis includes a brief review of policy-related institutional constraints, weaknesses and opportunities.

1.2.1 Policy-Related Institutional Framework

Historically, each sectoral "production" ministry has dealt with RNR policy issues for its respective sector, with little cross-sectoral coordination; more often than not, policy issues have been addressed on an even narrower sub-sector basis by sub-ministerial offices (i.e., General Directorates or Directorates). Until 1994, politically sensitive cross-sectoral policy issues were resolved by the Council of Ministers and/or the President's Office, on an ad hoc basis, while non-sensitive concerns went largely unresolved. Many hoped that the creation of CONAM in 1994 would provide an effective specialized institutional framework to coordinate and provide specialized leadership in formulation of desirable policy changes within a cross-sectoral forum, and to internalize desirable changes across sectors. Experience to date in this regard is not encouraging: more than four years after creation of CONAM, cross-sectoral coordination and resolution of policy concerns remains a desirable but elusive objective; where RNR policies are concerned, the existence of CONAM has created an additional instance of overlapping roles that generate institutional jealousies and conflicts.

Although public discussion and legislation activity related to RNR policy improvements appears to be growing, increased funding and a higher political hierarchical level for public sector institutions responsible for ENR (and more specifically, BIOFOR-related) policy formulation and implementation has not yet occurred. Underscoring this conclusion is the political status accorded to CONAM in the 1994 law: although alternatives were proposed, encouraged and debated, CONAM eventually was established as a dependency of the Office of the President of the Council of Ministers, thereby according the President of CONAM a political status clearly below that of a Minister of State. Furthermore, most executive branch policy initiatives related to formulation or interpretation of ENR policy emanate directly from the Presidential Palace (either directly or through the Ministry of the Presidency) or from the Council of Ministers, usually without any apparent active role by CONAM (or by INRENA, in the case of RNR policies). Likewise, this approach often by-passes relevant offices of line ministries that may have technical knowledge and implementation experience to contribute to the policy formulation process, and who ultimately are responsible for implementation of those policies.

1.2.2 Formulation and Implementation

Historically, the Ministry of Agriculture (MAG) has exercised primary authority and responsibility for formulation and implementation of RNR policies, including those related to biodiverse and fragile ecosystems. The various RNR-related sub-sectoral general directorates of the MAG and the semi-autonomous natural resources evaluation and studies office were consolidated by Supreme Decree (Executive Order) DS-055-92-AG into the semi-autonomous Instituto Nacional de Recursos Naturales (INRENA). Since then, INRENA has been subjected to political and institutional instabilities, passing through several permutations.

Currently, INRENA is a dependency of the MAG, and is charged with primary public sector responsibilities related to RNR policy formulation and implementation matters, excepting irrigation water use matters, and agricultural watershed conservation and management, each of which is a separate department within MAG (although irrigation water matters initially were included as a General Directorate of INRENA). The General Directorate for Water and Irrigation (DGAR) carries out primarily administrative functions related to regulation and distribution of irrigation water (which also involves related policy implementation), and the National Program for Watershed Management (PRONAMACHCS) provides technical and other assistance to farmers to encourage adoption of soil and water conservation practices, especially in the Sierra and Selva. Thus, INRENA is charged with the primary public sector responsibility for policy dialogue, formulation and implementation related to biodiversity, forests and other fragile ecosystems (BIOFOR).

Unfortunately, the process over the past eight years of centralization of GOP decision-making at the Presidential Palace level, particularly with regard to Ministry of Agriculture role and functions related to RNR, has severely eroded INRENA's financial health and institutional capacity for leadership in improving BIOFOR policy formulation and implementation. An example is the removal of the General Directorate of Water and Irrigation from INRENA which caused a major loss of revenue from irrigation water fees (canons).

Likewise, INRENA's influence on the content of legislation over the past few years has been diminishing and now appears to be marginal at best (see discussion below). With severely limited financial and human resources, and in the absence of higher level political support, INRENA effectiveness in influencing the content of new policy initiatives and in implementing them has been disappointing. The current reality and public perception is that INRENA is a weak and politically marginalized institution unable to provide effective leadership for policy improvement.

Cases in point are: 1) 1997 legislation related to biological diversity, conservation and sustainable use, and, 2) proposals for a new forestry law; in both cases, although INRENA and NGOs offered technically sound options, including complete draft laws, influence at the highest political levels by powerful special interests were successful in achieving modifications that seriously weaken conservation and sustainable use policies. In the case of the proposed forestry law, this high level political influence has frustrated attempts to pass an updated law for seven years.

Nevertheless, RNR policy implementation responsibilities remain largely within INRENA at the sectoral and sub-sectoral levels, with only limited inter-action across sectors and sub-sectors at the national level. At the local level, greater opportunities exist for coordination across sub-sectors and sectors, but this often does not occur because institutional jealousies, conflicts and competition for resources at the center negatively influences the periphery.

In sum, RNR and related policies have been and continue to be formulated and formalized through laws, regulations, directives and practices that often are incompatible and inconsistent across sectors and sub-sectors, with consequent negative impacts on effective conservation and sustainable management of biodiverse and fragile ecosystems. This condition extends to policy implementation in terms of actions and relationships at the national level, and often at local levels as well.

1.2.3 Major Legal Policy Instruments

Current legal instruments that frame biodiversity and fragile ecosystems conservation and management policies, including forestry management and utilization policies, are indicated below.

- International and Multi-lateral Commitments. Peru is signatory to several international and multi-lateral conventions and agreements that should guide national BIOFOR policies. The more relevant include:
 - Convention on Biological Diversity, to develop national strategies for conservation and sustainable use of biological diversity (December, 1993); the National Commission on Biological Diversity (CONADIB) coordinates compliance;
 - Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), to protect certain endangered species from over-exploitation by means of a system of import/export permits (July, 1975);

- Convention on Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR) to ameliorate progressive encroachment on wetlands in recognition of their fundamental ecological functions and values (December, 1975);
- International Tropical Timber Agreement of 1983 (Tropical Timber 83), and the International Tropical Timber Agreement of 1994 (Tropical Timber 94); the latter (not yet in force) is to ensure that by the year 2000 exports of tropical timber originate from sustainably managed sources;
- UN Framework Convention on Climate Change to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level to avoid dangerous anthropogenic interference with the global climate system (March, 1994); the National Commission on Climate Change coordinates compliance;
- Amazon Cooperation Treaty (TCA) with other countries whose territories include amazon basin lands provides guidelines for ecological economic zoning (EEZ) plans; the Institute for Amazon Research (IIAP) was established in furtherance of the terms of the treaty.

The General Directorate for the Environment of the Ministry of Foreign Relations is charged with oversight of national compliance with policy and other commitments under these international conventions and agreements. Appropriate subject matter institutions (especially INRENA) are responsible for formulating and implementing policies that respond to international commitments.

- **Constitutional Provisions.** Environmental Directives have been recognized in the Constitution of Peru at least since 1979. Environmental concerns in the current 1993 Constitution are: (1) a balanced environment adequate to life's needs is a human right (Article 2-22); (2) the government is charged with developing a national environmental policy that includes the concept of sustainable use and development (Article 67); and, (3) directly relevant to BIOFOR, the State is charged with protecting and conserving biological diversity and natural resources.

A major departure from earlier constitutions specifies that natural resources are "patrimony" instead of "property" of the State (Chapter VI). Presumably, policy legislation now can authorize and even encourage private ownership of natural resources, distinct from ownership of the land itself. This tilt towards flexibility in private real property rights also is reflected in the elimination of earlier constitutional concepts of "inalienability" and "imprescriptability" of real property rights for "native" and "campesino" communities; these changes potentially could have considerable impact on ownership, control and treatment of natural resources by those who obtain their livelihood and incomes therefrom.

- **National Legislation.** Legislation that establishes mandatory and indicative BIOFOR policy is varied, dispersed over time and over a number of laws. Laws tend to be narrowly focused at sector or sub-sector levels, and often accommodate to special short-term interests at the expense of conservation and sustainable use. The result is a considerable hodge-podge of often inconsistent and incompatible policy directives (laws, regulations and ministerial resolutions), a condition that facilitates influence peddling, favoritism and opportunities for corruption.

Major legislation directed to RNR and BIOFOR are listed below in two categories: Recent Legislation adopted in the decade of the 1990s; and, Outdated Legislation adopted primarily in the 1960s and 70s. Major gaps and weaknesses are discussed later in the policy constraints section.

- **Recent Legislation.** Several laws have been approved in the last decade that restate and modify RNR policies, and more specifically, biodiversity and fragile ecosystems policies. These include:
 - Environmental and Natural Resources Code (DL 613, 1990), as modified by the Agricultural Investment Promotion Law ((DL 653, 1990) and the Private Sector Investment Promotion Framework Law (DL 757, 1991). The "ENR Code" purported to provide a policy framework and guidelines for subsequent more specific legislation. Subsequent legislative decrees (laws promulgated by the Executive when Congress is not in session, under specific delegations from Congress) eliminated some key measures of the code oriented to protection of RNR, and also expressly lodged in "production" ministries most public sector authorities and responsibilities related to ENR matters, including policy formulation and implementation. Since then, all production ministries (that previously did not have them) have established environmental affairs directorates or general directorates.
 - National Environmental Council Law (Ley 26410, 1994). This Law created the Consejo Nacional del Ambiente (CONAM), an organization strongly lobbied for by the donor community, including USAID. It was hoped that CONAM would correct the fragmented public sector ENR policy-making process. As indicated, that intended result has not yet occurred.
 - Protected Natural Areas Law (Law 26834, July, 1997), in furtherance of guidelines specified in the ENR Code and addresses some commitments in international agreements referenced above.
 - Biological Diversity Conservation and Sustainable Use Law (Law 26839, July, 1997), in furtherance of guidelines in the ENR Code, and responds to some commitments under the International Convention on Biological Diversity referenced above.

- **Outdated Legislation**

- Forestry and Wildlife Law (1975) does not accommodate modern technological, management and organizational advances, nor commitments under international agreements; on the contrary, instead of being oriented toward participatory management and incentive compliance policies, this law has a strong "command and control" orientation. Numerous regulations have accumulated over the more than 20 years of existence, creating a confusing and often conflicting body of rules and regulations, many of which are not consistent with each other, including several approved in the 1990s.
- General Waters Law (1969), even older than the Forestry law, also takes a "command and control" approach to water conservation and sustainable use; oriented largely towards controlling distribution and use of irrigation water. This law also has accumulated numerous regulations and rules over the years, well up into the 1990s.

2. Constraints Affecting Policy Improvement

This section briefly discusses the major policy constraints to improved conservation and management of biodiverse and fragile ecosystems. These constraints include weaknesses in the process of formulating improvements in policies, major gaps and weaknesses in the existing policy framework, and major shortcomings in the on-going policy implementation process, all of which contribute to inaction, misinterpretation, inappropriate applications, and failures to apply, and constitute policy-related impediments to improved conservation and management of biodiverse and fragile ecosystems.

2.1 Policy Dialogue and Participation

Policy change and policy improvement often are not synonymous, at least in the context of expected outcomes of the BIOFOR Activity to significantly improve conservation and management of biodiverse and fragile ecosystems, thereby contributing to the USAID ENR strategic objective and intermediate results. Thus, it is critical for BIOFOR to bring to bear mechanisms for inducing changes in existing policies, the policy change process and in policy implementation, to assure positive contributions through implementation of BIOFOR tasks and actions to realization of expected outcomes.

The past decade of experience in Peru strongly suggests that despite considerable policy changes related to biodiversity and fragile ecosystems, meaningful contributions made by such changes have been spotty at best. In other words, several of the policy changes of the past decade have not been policy improvements in the context of expected BIOFOR outcomes, either because the policy itself is inadequate, or because effective implementation has not occurred.

Improvements in the existing policy milieu are achieved through a continuing interactive and iterative process that involves five steps: 1) existing policy implementation, 2) impact measurement and evaluation of the implementation process and results achieved, 3) analysis of information generated by the previous step, 4) with the analyses serving to identify the nature and scope of on-going policy failures and options for overcoming such failures, formulate, using participative policy dialogue, desirable policy changes, and, 5) incorporate formulated changes into the relevant policy framework through legislation or other approval process appropriate to the legal hierarchy of the changes, and these in turn are incorporated into the on-going policy implementation and change processes. To be effective, this process operates as an interactive and iterative continuum.

In Peru, there are weaknesses in implementation of each of these steps, but perhaps the greatest constraints are the, 1) lack of an institutionalized system for policy dialogue with all stakeholders for improving policy formulation (step 5), and, 2) failure to incorporate local participation into policy implementation activities (step 1). USAID experience over several years demonstrates that a dynamic dialogue mechanism which gives stakeholders a substantive voice in policy formulation, combined with active stakeholder participation in policy implementation management at the local level, are key elements to a positive, mutually reinforcing and continuous policy improvement process.

2.2 Policy Analysis Capacity

Because of budget erosion over the past several years, INRENA's professional and technical staff has been shrinking, and as experienced staff leave, young, less-well prepared and relatively inexperienced lower-salaried persons replace them, if they are replaced at all. Likewise, as is typical in such situations, short-term regulatory and politically sensitive concerns absorb most of the available staff energies.

Modest policy research and analysis capabilities do exist, dispersed among public and private sector institutions, including universities and some specialized NGOs. However, in the absence of a common view of policy priorities and limited availability of funds for analysis, these tend to be under-utilized or ineffectively utilized.

2.3 Substantive Policy Gaps and Weaknesses

Current laws, regulations and both formal and informal institutional operating practices (e.g., institutional operational policies, which also are a part of the body of relevant policies) house innumerable policy gaps and weaknesses. Over the past decade, several studies, including those commissioned by USAID, have identified a number of the more serious policy constraints. A complete inventory is not available nor would it be particularly useful; it is not within the scope of this analysis to attempt to identify and/or review each one or even most of them. This section discusses important categories of policy gaps and weaknesses, selected because of their actual and continuing potential negative impacts constraining progress and effectiveness of past initiatives and those proposed under the BIOFOR Activity.

- **Sectoral Cleavages and Centralized Authority.** Policy-induced sectoral cleavages and highly centralized decision-making authority, already discussed above, permeate current laws, regulations and institutional practices. Likewise, by omission at all of these policy levels, local stakeholder participation in management of protected areas and forest resources is largely excluded. The roster of past and continuing damage to BIOFOR ecosystems that can be traced to these policy failures is major and rapidly increasing.

- **Regulation of Timber Harvesting.** Starting with the command and control approach found in the outdated forestry law, and continuing with current regulations and practice in awarding timber contracts, the "mining" of biodiverse and fragile ecosystems is being aided and abetted. Although new large-area timber harvesting contracts have been prohibited since 1992, prior contracts are regularly renewed and expanded. Further, small timber concessions continue to be granted, and these, not only do not require approved management plans, but also serve as a vehicle for illegal logging on adjacent lands. Other anomalies include a ban on any logging in selected watersheds, and prohibition of chain-saw lumber dimensioning, both of which are impractical and impossible to enforce. A new forestry law could establish a policy framework to modernize and rationalize management of timber harvesting on an ecologically compatible and sustainable basis.
- **Policy Dialogue For Change.** Change although not usually the direct subject of policy legislation, policy dialogue is not now, nor has it ever been a part of the policy formulation process in Peru. It likely will require legislation to change traditional institutional practices of centralized policy formulation, making it largely a political process, with technical input often being secondary and stakeholder input being nearly non-existent, except through high-level political power-broker channels. The concept of public hearings on proposed policy change legislation or formulation/reformulation of regulations is not a part of the policy formulation process. Although informal consultations with constituents may occur, there does not exist in Peru a defined or institutionalized process that assures consideration and/or incorporation of stakeholder views into policy decision-making. Even less is public and stakeholder education and awareness an institutionalized mandate.
- **Planning and Management Systems.** Recent legislation incorporates concepts of management plans as a policy mandate, but neither institutional commitments nor capacities are adequate to the task of developing or implementing effective management plans. Likewise, the concept of local participation in development and implementation of management plans remains incipient, and, for much of the public sector bureaucracy, a troublesome idea.
- **Economic Valuation of Resources.** Environmental and natural resource economics (ENRE) is incipient in Peru. Thus, economic analysis seldom is applied to help resolve environmental conflicts to guide efficient patterns of natural resource development, consistent with conservation and preservation of valuable natural assets such as biodiversity. Few Peruvian economists have had experience in applying natural resource accounting at the sectoral level. Thus, ENRE methodologies are difficult to apply.

Lack of regulation of access to biological diversity translates into failure to recognize biodiversity values in the marketplace. Rights of access to biological diversity need to be defined, and compatible uses expanded. This requires policies that internalize such values. These concepts do not exist within the Peruvian policy framework.

2. Priorities for Policy Improvement Interventions

To achieve cost-effective policy improvements for improving the conservation and management of biodiversity and fragile ecosystems, technical assistance and funding should be provided by the proposed BIOFOR Activity for the following priority interventions:

- To support research in biodiversity and carbon sequestration values and their capture, to disseminate the findings, and to incorporate those findings into the policy change process. Other high priority policy research areas include, a) assessment of biotechnology development options, b) options for introducing economic incentives into management policies for natural resources, and, c) options for internalization of biodiversity values as a matter of policy.
- To support activities that facilitate application of policy dialogue and participation of stakeholders as an integral part of the policy implementation, feedback and change process. This can include in-country training in principles and practices for policy dialogue and participation, offered to both public and private sector personnel associated with BIOFOR-type activities, including those involved in management of biodiverse areas and fragile forest ecosystems. Application of these concepts also can be incorporated into the dissemination and utilization in policy dialogue of the research results generated in 1, above.
- To support pilot activities that incorporate policy dialogue, local participation and economic valuation into management and planning activities.
- To support development of regulations and policy operating manuals for implementation of the recently enacted Protected Natural Areas Law and the Biological Diversity Conservation and Sustainable Use Law.
- To support development and application of innovative management tools for improving the policy change process, e.g., from implementation and feedback to conception and consensus building, including actions that build partnerships among both public and private stakeholders.
- To support information gathering and dissemination about innovative policies successfully applied in other countries.

Annex G

Creating a Carbon Sequestration SO-Level Indicator

Justification for a Carbon Sequestration SO-Level Indicator

DATE: 23 June 1998

TO: Thomas Moore
Biodiversity Specialist
Office of Environmental and Natural Resources
USAID/Lima

FROM: Doug Pool and Doug Southgate

RE: SO-level indicator on
Carbon sequestration

This memorandum addresses the option of adding an SO-level indicator, one that is specifically focused on the amelioration of global climate change (GCC) by sequestering carbon in forests.

To begin, the climatic benefits of carbon sequestration are outlined, as is Agency interest in decelerating global warming. Next, a specific indicator is proposed, along with measurement and validation procedures. Finally, the feasibility of adding the new SO-level indicator is discussed.

1. Background and Justification

Destruction of tropical forests and other natural habitats in the developing world results in a number of adverse environmental impacts. Deforestation of upper watersheds, for example, can lead to increased sedimentation and more variable stream flow at lower elevations. As farmers, ranchers, loggers, and miners colonize places like the Amazon Basin, indigenous communities often suffer. Furthermore, global biodiversity is inextricably tied to the fate of tree-covered land near the equator, which harbors a huge portion of the world's plant and animal species.

Climate change, which also is influenced by deforestation, has attracted renewed attention through the Kyoto and related global conferences. Deforestation contributes upwards of 25% of total green house gas (GHG) emissions. Tropical forests play a critical role in global climate change mitigation and particularly important are the benefits forests provide through carbon sequestration and carbon storage. For years, scientists have contended that logging and land-use conversion can set in motion a destructive cycle of drier conditions and fires across extensive areas.¹ While forest fires obviously do contribute to a rise in GHG emission and a decrease in a forest's ability to act as a sink for GHG's, the interventions proposed for the Biodiversity and Fragile Ecosystems Conservation and Management Activity are focussed on policy assistance and site-based activities to improve management of biodiversity rich areas and forests.

Compared to economic evaluation of deforestation's other environmental consequences, biodiversity loss for example, putting a dollar value on global warming damages is relatively straightforward. Depending on the original state of the forest and also the replacement land use, between 100 and 200 metric tons of carbon are released from each hectare, in the form of carbon dioxide. Economic investigation of sea-level rise and other impacts of global warming suggests that damages amount to \$5 to \$10 per ton. This suggests that the global climatic benefits of protecting or establishing forests ranges from \$500 to \$2000 per hectare.²

Benefits of this magnitude happen to exceed the net returns of alternative land uses, like farming or cattle ranching, in the Peruvian Amazon. There is strong evidence that agriculture's net returns in the region are low. The price at which any particular parcel is bought or sold reflects the discounted value of future earnings; in colonized areas east of the Andes, the value of untitled land, which is especially cheap, is not much more than 125 soles (approximately \$45) per hectare. In other words, the income colonists derive from agricultural land clearing is an order of magnitude lower than the global warming damages resulting from that activity.

This climate change indicator relates directly to deforestation, supports INRENA on monitoring and assists in developing policy incentives not to burn. While AID is working with fire control and impacts of deforestation in Mexico, Central America, Indonesia, etc. few other missions have yet to incorporate GCC indicator at the SO level. The proposed indicator would include protecting existing carbon stocks in standing forests through improved protection and management of parks and protected areas as well as promote carbon sequestration by supporting reforestation and improved management of secondary forests.

Discussions with CONAM regarding joint implementation opportunities in Peru quickly revealed their view that GHG emissions could be reduced through clean technology transfer and that maintaining carbon stocks in standing forests was not included in the national policy since carbon offsets or credits had not been defined or yet agreed to.

The EPIQ Assessment Team feels that joint implementation opportunities where partnerships between U.S. utility, petroleum, or industrial emitting firms and a country willing to trade carbon credits in return for maintaining carbon stocks and protecting forests and biodiversity is an innovative way for Peru to capture international investment.

Currently Mobile is negotiating a joint implementation project with The Nature Conservancy/PRONATURALEZA in two sites: Yanachaga-Chemillen in the Selva central and the Candamo Lot in the Department of Puno where exploration drilling is scheduled to start in July 1998. Mobile as yet to determine if it will seek carbon credits for these two sites. If Mobile desires the carbon credits to offset some of the emissions, then the joint implementation proposal has to be approved by CONAM, the designated lead agency on GCC.

TNC has already successfully negotiated joint implementation projects that include forest research, protection, and sustainable management in Belize (Rio Bravo), Bolivia (Noel Kempf NP) with several other possibilities under discussion.

The Assessment Team recognizes CONAM's reluctance to consider Peruvian forests and joint implementation, but suggests that further discussions are warranted in order for Peru to take advantage of protection and biodiversity conservation opportunities by attracting foreign investment in GCC.

2. Rationale

In June 1997 at the UN General Assembly Special Session on Environment, President Clinton announced that the United States would commit to provide at least \$1 billion in assistance to developing and transition countries to combat the threat of climate change. USAID was given the lead on behalf of the Federal Government in implementing the President's commitment. In response, the Agency created a Climate Change Team, developed a climate change action plan, and recently launched its five-year Climate Change Initiative (CCI).

The CCI requires that USAID track, monitor and report on the results of all Agency climate change-related activities undertaken between 1998-2002. To do this, the Climate Change Team developed a series of indicators that have been cleared by all of the Regional Bureaus and PPC and will be approved and adopted by the Agency's Environment Sector Review Board as part of the framework for the Agency-side Strategic Objective to reduce the threat of climate change. All missions undertaking activities that directly or indirectly reduce net GHG emissions and/or assist a host country to address the threats of climate change through policy development, leveraging of funds, and institutional strengthening, will report on the indicators.

Combating the threat of global climate change is one of USAID's highest priorities; it is therefore important to incorporate mechanisms for reporting on the indicators into all new climate change-related activities.

Reflecting the Agency's abiding environmental concerns, its fourth goal is "environment managed for long-term sustainability." Related to this are three objectives, including "global climate change threat reduced." Specific activities in support of this objective have been undertaken in various parts of the world, including a LAC regional initiative to facilitate carbon sequestration initiatives throughout the Amazon Basin.

A recent GCC initiative from G/ENV has defined at least one result "Reduced Net Greenhouse Gases Emissions from the Land Use/Forest Management Sector" which coincides directly with the proposed strategy and activity interventions of the Biodiversity and Fragile Ecosystems Conservation and Management Activity.³ Three specific policy assistance and four specific site-based interventions developed during this assessment will support this result.

Policy Assistance

Developing economic valuation criteria for biodiversity including methodology to incorporate environmental and social costs and benefits in biodiversity and forest resource valuation including carbon sequestration;

Supporting the protection and consolidation of key biodiversity rich areas (e.g. border parks, corridors such as Gueppi, Divisor, Bahuaja-Sonene, Madidi etc.) and promoting communal reserves as a strategy to reinforce local stakeholders participation in natural resource use; and

Supporting the establishment of forest certification standards and monitoring mechanisms.

Site-Based Interventions

Supporting local initiatives, including targeted extension work, for sustainable alternatives to deforestation and exploitation of threatened ecosystems;

Facilitating participatory elaboration and implementation of PA-specific resource use plans;

Promoting the intensified and efficient use of secondary forests; and

Support forest certification awareness and training.

Under these circumstances, a Mission SO 4 -level indicator relating specifically to carbon sequestration ought to get a receptive hearing in the Agency.

3. Proposed Indicator

The proposed Climate Change Indicator relates directly to slowing deforestation, increasing protected areas which would otherwise be lost, and increasing secondary forests under management.

In order to ensure compatibility with Agency-wide indicators and reporting, the EPIQ Assessment Team suggests that results of the proposed activity interventions can be easily measured by one indicator suggested by G/ENV:

Indicator 1: Area where USAID has initiated interventions to maintain or increase carbon stocks or reduce their rate of loss. This indicator attempts to capture the full scope of USAID land use activities that are making progress in protecting carbon stocks. Progress is defined as activities which include one or more of the following:

- Resource or land management plans developed
- Community participation engaged in program implementation
- Resource management initiated
- Monitoring and evaluation system in place
- Site-specific policy constraints being addressed

Unit: Hectares

Indicator 2: Area where USAID has achieved on the ground impacts to preserve, increase or reduce the rate of loss of carbon stocks. This indicator captures a subset of the area reported in Indicator 1. Measure and monitoring of biomass or carbon are not required for this indicator. This indicator can be further defined by including information that an area has met rigorous criteria (2a) for protection or stabilization of the forest area and (2b) documentation that an area has been converted from degraded agricultural land into a functional agroforestry plot.

2a. Area of natural resource ecosystems where carbon stocks are preserved and/or increasing. (areas of minimal or no biomass harvest) Areas included under this indicator are those without significant harvest of biomass including protected areas, areas used for the extraction of non-timber forest products and community-based forests management with minimal timber extraction.

Unit: Hectares in each habitat type.

2b. Area of managed forest, rangeland, and agricultural lands with reduced rate of loss of carbon or increased carbon stock. (areas with moderate or high levels of biomass harvest) Hectares should be reported where reduced rates of carbon emissions or increased carbon stock are apparent through an increase in standing biomass, decrease in decomposition or fire risk in following categories:

- Sustainable forest management for timber using reduced impact harvesting'
- Agroforestry
- Reforestation
- Sustainable agriculture

Unit: Hectares in each land use category

Indicator 3: National Policy advances in the land use/forestry sector that contribute to the preservation or increase of carbon stocks and sinks. For this indicator USAID-assisted policies that are not captured in site specific activities could include key policy achievements such as developing regulations for the implementation of the Law for the Sustainable Use of Biodiversity and the Protected Area Laws or assisting in the definition of local resource use rights, including land titling at critical points.

G/ENV recommends that one point is given for each of three steps completed towards the adoption of legislation or administrative action that:

- Facilitates improved land use planning
- Facilitates sustainable forest management
- Facilitates establishment and conservation of protected areas

- Clarifies and improves land and resource tenure

Unit: Points

4. Measurement and Validation

Measurement of the new indicator would require the multiplication of protected parks, non-deforested lands, etc., which are all expressed in hectares, by estimates of carbon stored or sequestered per hectare. Data on the former areas are already being collected by the SO4 Team and can be easily reported in the format forwarded by G/ENV. The per-hectare storage or carbon sequestration rates, including changes in land use are readily obtained from reports of previous or ongoing research, including studies undertaken by World Resources Institute (WRI) and Winrock International. Baseline carbon stock estimates for forested ecosystems and country specific data for Peru is summarized in the Agency Climate Change Initiative.⁴

No specific quantitative target is proposed here. However, coming up with such a target should not be very difficult. To be specific, per-hectare storage or sequestration rates should be multiplied by hectares that the Mission is expecting to have either under official protection or improved management five years from now.

5. On Feasibility

Mission interventions relating to improved environmental management, particularly those having to do with biodiversity conservation, will have a positive impact on carbon sequestration. The addition of a new SO-level indicator merely allows the Mission to identify the full range of positive environmental consequences of its actions and provides a potential linkage to regional initiatives, particularly similar natural resources management activities in neighboring Amazon Basin countries.

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cc: Jorge Elgegren

Annex H

Matrix Review and Priorities Suggested for Site Interventions

1. Recomendaciones Para Determinar Prioridades de Intervenciones en Conservación de Diversidad Biológica y Ecosistemas Frágiles

La priorización de las áreas consideradas en el análisis se presenta en la Tabla 1:

Table 1. Priority Areas for Site Interventions

ANP	PUNTAJE	LINKAGE USAID	FINANCIAMIENTO COMPROMETIDO
PN Rio Abiseo	19.5	S04	No
PN Huascarán	17.5	G/ENV	KFW, Holanda
PN Bahuaja - Sonene	16.5		Holanda
RN Pacaya - Samiria	16.5	S04	WWF, TNC
PN Cerros de Amotape	16		KFW
RN Paracas	15	S04	KFW, Alemania, NVWF
PN Manu	15		UE, WWF
RN Titicaca	12		GEF
SN Manglares de Tumbes	11.5		Holanda
PN Tingo Maria	10.5	S05	No
ZR Pantanos de Villa	9		UE, otros
SN Calipuy	6		No

Esta selección no limita necesariamente las intervenciones al ámbito de las áreas protegidas, como podría suponerse. Las intervenciones deberán impactar en las zonas de amortiguamiento de las áreas protegidas, así como en la minimización de amenazas locales, como se plantea en el análisis de amenazas.

Igualmente, en las intervenciones se podrán incluir áreas donde no existan áreas naturales protegidas, siempre y cuando cumplan con los criterios de riqueza en diversidad biológica y las posibilidades de conservación de bosques o de demostración de cambios climáticos.

Este informe también analiza la matriz de evaluación de la gestión de las áreas protegidas y sugiere algunos cambios así como su actualización.

1.1 Selección De Prioridades Para Las Intervenciones

El trabajo reciente de Vasquez (1997), para realizar el ejercicio de aplicación de la matriz de evaluación de la gestión de las áreas protegidas, utilizó cinco criterios:

- a. Biological Representativity
- b. Size
- c. Organizational level
- d. External financial and technical support
- e. Data availability

Bajo estos criterios, Vasquez seleccionó catorce áreas del SINANPE sobre las cuales evaluó la gestión. Once de estas áreas, además de la Zona Reservada Pantanos de Villa (muy cercana a Lima) y el Parque Nacional Tingo María, son priorizados en este documento, considerando los siguientes criterios:

1.1.1 Criterios Biológicos

- **Representatividad Biológica.** Se considera si el área representa adecuadamente una región biogeográfica (CDC, 1991) y una de las 38 zonas prioritarias para la conservación de la diversidad biológica en el Perú (Rodríguez, 1996). Este último análisis, identificó zonas con alto número de especies, alto número de endemismos y las combinó con las prioridades por ecosistemas, además de las zonas críticas.

Las zonas que coinciden con una zona prioritaria y cubren su representatividad alcanzan un puntaje = 3; las áreas que no representan una ZP, tienen puntaje = 1. Las áreas que tienen un reconocimiento internacional, suman un punto adicional.

- **Tamaño Del Área.** Según las categorías de manejo, el documento técnico del Plan Director (FANPE, 1995) consideró superficies mínimas deseables para las diferentes categorías del SINANPE, de modo que garanticen el cumplimiento de los objetivos de creación:

- Parque Nacional > 250,000 ha
- Reserva Nacional > 50,000 ha
- Santuario Nacional > 50,000 ha
- Santuario Histórico > 2,500 ha
- (Refugio Silvestre) > 5,000 ha
- (Reserva Paisajística) > 25,000 ha

Las áreas que cumplen con este requisito, tienen puntaje = 1.

- **Estado De Conservacion Del Ecosistema.** Para este criterio se ha considerado la evaluacion hecha por W\VF y el Banco Mundial (Dinerstein et al, 1995), la cual combina la importancia biologica de las ecorregiones en Latino America y el Caribe, con el estado de conservacion de los ecosistemas. El estado de conservacion es medido considerando perdida de habitat, degradacion, tasa de conversion, tamano de bloques de habitats y grado de proteccion. De esta clasificacion los ecosistemas peruanos mas arnenazados y de primera prioridad regional son:
 - En peligro: (puntaje = 4)
 - Yungas Peruanas
 - Bosques Secos Tropicales
 - Manglares (en general)
 - Vulnerables: (puntaje = 3)
 - Bosques humedos del rio Ucayali
 - Bosques de Varzea
 - Bosques montanos de la Cordillera Real Oriental
 - Paramo de la Cordillera Central
 - Puna de los Andes Centrales
 - Puna Hurneda de los Andes Centrales
 - Desierto de Sechura *
 - Relativamente estables (puntaje = 2):
 - Bosques humedos del rio Napo
 - Bosques illundables de la Amazonia Occidental
 - Bosques humedos de la Amazonia Suroccidental

(*) Elevado a primera prioridad para completar cobertura regional.

- **Presencia De Bosques, O Potencial Para Demostrar Cambios Climaticos.** La conservacion de los stocks de carbono, muy importantes en los bosques tropicales, es una manera de minimizar los efectos del cambio climatico. Al mismo tiempo, existen ecosistemas que de producirse el calentamiento de la tierra, sufririan sustarlciales cambios (i.e. humedales, glaciares, lagos, etc). La presencia de estos ecosistemas se considera tarnbien como criterio para la seleccion de las areas a trabajar. Si existen bosques, pulltaje = 3; si hay potencial para mostrar cambios climaticos, puntaje = 2; si es minimo, puntaje = 1.

1.1.2 Criterios de Oportunidades

- **Posibilidades De Subir De Categor1a En La Miatríz.** Las posibilidades mas claras estan en la elaboracion de planes de manejo, donde al menos se subirian 5 puntos. Claramente, Huascaran, Cerros de Amotape y Bahuaja Sonene podrian subir de categoria (puntaje = 2), con intervenciones que contribuyan con los planes de manejo de las areas. En otros casos, el numero de puntos para subir a la siguiente categoria es un poco alto, por lo que se considera no muy facil (puntaje = 1). Aquellas areas que en la matriz estan alejadas mas de 15 puntos de la siguiente categoria se consideran metas dificiles (puntaje = 0).
- **Capacidad de Gestion de Posibles Contrapartes.** Este criterio se refiere a la capacidad actual de las instituciones, que existen en torno a algunas areas, para manejar y administrar las posibles intervenciones. El puntaje es como sigue: 0 = nada; 1 = inestable; 2 = debil; 3 = bueno; 4 muy bueno; 5 = excelente.
- **Oportunidades de Accion.** La voluntad politica por intervenir, las posibilidades de fondos provenientes de otros programas o actividades de AID, especialmente relacionados con desarrollo alternativo y las oportunidades para un salto en la matriz a la siguiente categoria, son algunos criterios que pueden mejorar las opciones de las intervenciones que se propongan. Una combinacion de estas oportunidades con la disponibilidad de fondos, seran buenos argumentos para tomar la decision final para intervenir.

Ya que en todas las areas protegidas hay especies arnenzadas de flora y fauna, esta es tam bien una oportunidad. Significa posibilidades de intervenciones de manejo o recuperacion de especies en las diferentes categorias de CITES y sobre las cuales generalmente existe una fuerte presion de uso por las poblaciones locales. Ademas, muchas de estas especies se conocen como especies bandera o carismaticas por la sensibilidad publica que despiertan.

Estos criterios, que son fundamentales para la decision final, no han sido incluidos en el analisis discriminante pero si tomados en cuenta para las recomendaciones finales.

- **Financiamiento Comprometido.** La presencia de otros donantes internacionales, en muchos casos es un factor que contribuye al desarrollo integral del ambito de las areas protegidas. Sin embargo, las restricciones presupuestales, el tiempo de duracion de los proyectos, o las lineas predefinidas por los donantes, establecen a veces un marco incompleto a la zona. Tambien puede ser que hubieron trabajos previos pero que ahora estan detenidos. Este factor se considera muy seriamente en la decision final. Ademas, la presencia de cooperacion internacional, debe ser organizada y siempre vista como oportunidades de intervencion, si se puede evitar la duplicacion del esfuerzo.

1.1.3 Resultados

Las prioridades obtenidas del ejercicio, presentadas en el ANEXO 1, son contrastadas con los aportes financieros significativos y las posibilidades de colaboraciór con otras intervenciones del USAID, en la Tabla 1:

Table 1. Priority Areas for Site Interventions

ANP	PUNTAJE	LINKAGE USAID	FINANCIAMIENTO COMPROMETIDO
PN Rio Abiseo	19.5	S04	No
PN Huascaran	17.5	G/ENV	KFW, Holanda
PN Bahuaja - Sonene	16.5		Holanda
RN Pacaya - Samiria	16.5	S04	WWF, TNC
PN Cerros de Amotape	16		KFW
RN Paracas	15	S04	KFW, Alemania, NVWF
PN Manu	15		UE, WWF
RN Titicaca	12		GEF
SN Manglares de Tumbes	11.5		Holanda
PN Tingo Maria	10.5	S05	No
ZR Pantanos de Villa	9		UE, otros
SN Calipuy	6		No

De este análisis se desprende claramente que tal vez no es necesaria una intervención en Manu, ya que esta bien cubierta financieramente, el proyecto de la Unión Europea en Manu, que empieza este año y que aporta 7 millones de Ecu para 5 años, además de otros programas financiados por WWF. De igual modo sucede con la RN Titicaca, donde pronto empezará un proyecto de 4 millones de dólares para 5 años. En el PNBS, va a empezar un proyecto de cerca de 2 millones de dólares para 3 años, por parte del gobierno de los Países Bajos. En varias áreas del sistema, entre ellas Paracas, va a invertir KFW, banco de Alemania, para equipamiento e infraestructura. En los casos que existen financiamientos parciales, las intervenciones deberán coordinarse con los otros donantes.

Dos áreas necesitan ser comentadas. La prioridad alcanzada por los bosques secos del Noroeste, es discutible debido al bajo volumen de carbono que almacenan, en comparación con los bosques húmedos tropicales; sin embargo, es seguro que los bosques secos son de alta singularidad en diversidad biológica, están muy amenazados y soportan una fuerte presión de uso. Tal vez amerita alguna intervención, si eso permite un cambio de categoría en la matriz.

El Parque Nacional Tingo Tivaria es actualmente el unico de su categoria sin saneamiento fisico legal. Esta area tiene suficiente apoyo politico para ser considerado con una pequena intervencion, para solucionar este problema y contribuir a la implementacion de su zona de amortiguamientos La ubicacion en un area de cultivos de coca y las otras intervenciones de USAID, hacen propicia una intervencion.

2. Potencial Para Subir en La Matriz de Evaluacion

Las calificaciones realizadas por Vasquez, califican la gestion de las areas (Tabla 2):

Table 2. Management Qualification of Some Protected Areas

Poor 0 - 39%	Deficient 40-59%	Acceptable with Limitations 60-69%	Good 70 - 84%	Excellent 85 - 100%
PNTM	PN Huascaran 57.0% PN Cerros de Arnotape 7.2% PN Bahuaja-Sonene 58.1%	RN Paracas 61.4% PN Rio Abiseo 64.2% PN Manu 65.0%	RN Pacaya Samiria 72.9%	

La posibilidad de pasar de "manejo aceptable con limitaciones" a "bueno", o de "deficiente a aceptable con limitaciones" son obvias para algunas areas. Sin embargo, es necesario revisar en cual de los criterios usados para esta calificacion se puede hacer cambios.

El ANEXO 2 incluye una tabla con los puntajes maximos alcanzables (columna de la derecha) y los valores alcanzados por cada una de las areas con posibilidad de intervencion. Este analisis no incluyo sin embargo la Zona Reservada Pantanos de Villa (ZRPV) ni el Parque Nacional Tingo Maria (PNTM). Aqui se puede ver que ni los programas de extensionw ni las coordinaciones con el sector privado, no haran ningun cambio en las evaluaciones como para facilitar un "upgrade". Las mejores posibilidades son en planificacion, en manejo participativo (el cual depende de convencer al jefe para permitir la participacion de la poblacion en la toma de decisiones) y en monitoreo ecologico.

Los resultados sobre posibilidades de upgrade, se dan en pesos diferenciados que se han incluido en la matriz de seleccion de sitios (2 puntos si la posibilidad es alta; 1 punto si la diferencia es >5, < 12; 0 puntos si la diferencia es > 12).

3. Analisis de La Matriz de Evaluacion de La Gestion de Anp

La matriz disenada por Vasquez para evaluar la gestion de las areas protegidas, considero doce elementos de gestion de ANP, como medida indirecta del grado de conservacion de la biodiversidad.

Como es obvio para una evaluacion de la gestion, la implementacion de la administracion del ANP lleva el mayor peso (40%). Segun esta matriz, basta con poner personal suficiente, darle capacitacion, financiarniento para pago de personal y construir puestos de vigilancia, para mejorar significativamente la gestion de un area y lograr pasar de la primera a la segunda categoria. Por otro lado, la minimizacion de amenazas politicas (conflictos con otros programas del Estado) no mejora mas que en 6% la gestion de las areas y por lo tanto la capacidad de conservar diversidad biologica.

Una comparacion de las evaluaciones de la RNPS y el PNH ha demostrado ciertas inconsistencias en el momento de aplicar la matriz, y seguramente han habido carnbios desde entonces. Por ejemplo, 22 de las ANP del sistema han sido inscritas en los registros publicos y se consideran casi completamente saneadas.

En esta perspectiva, aun cuando el ejercicio no tuviera errores, se estima que el modo de garantizar la conservacion de diversidad biologica debe ser un reflejo de la rninimizacion de amenazas, la participacion activa de la sociedad civil (local, ONGs, otras instituciones) en la gestion y la planificacion participativa del manejo del area, ademas del seguimiento de los elementos de la biodiversidad criticos o importantes y una adecuada zonifciacion del ANP. A continuacion una propuesta para mejorar la matriz.

3.1 La Propuesta de Modificacion

Tomando como base la matriz de Vasquez (1997), al mismo tiempo que los objetivos de conservacion de diversidad biologica, se hacen las siguientes sugerencias para mejorar la fornna de medir la gestion de las ANP:

CRITERIO	VALOR VASQUEZ	VALOR SUGERTDO
Legal		
1. Saneamiento fisico-legal	6%	15 %
Administracion		
2. Personal	14%	10%
3. Infraestructura y equipamiento	12%	5%
4. Financiamiento	14%	10%
Planeamiento		
5. Planes de manejo	15%	5%
6. Planificacion participativa	4 %	5 %
Zonificacion adecuada		5 %
Gestion Del Area		
7. Participacion en el manejo	4%	10%
8. Programas de extension	3 %	
9. Coordinacion con el sector privado	4%	
Uso de ANP acorde a objetivos y categoria		10%
Conocimiento Del Area		
10. Monitoreo del estado de la biodiversidad	9%	10%
USO De Recursos		
11. Conflicto en el uso de recursos	9%	
Adenazas Externas Al Manejo		
12. ConSictos con otros sectores del Estado	6%	15%

La justificacion a los nuevos criterios o pesos otorgados se da a continuacion:

- **Base legal (15%)**
El saneamiento fisico-legal del area es el instrumento mas importante para las instancias intersectoriales y locales. Este saneamiento incluye la inscripcion en los registros publicos, la demarcacion fisica de los limites y la concordancia con las propiedades colindantes al ANP.
- **Administracion (25%)**
La administracion de las areas, es una responsabilidad del Estado. Si bien la cooperacion puede aportar en infraestructura y equipamiento (de ahi el 5%), los gastos recurrentes deberian ser cubiertos por fondos del Estado; esta deberia ser una cualidad del financiamiento. Tambien podrian medirse por otros parametros mas cualitativos como duracion del personal en el cargo o la capacidad de gestion de las areas expresada en proyectos gestionados exitosamente por el jefe del area, entre otros.
- **Planeamiento (15%)**

El plan maestro (de largo plazo) y los planes anuales, turísticos, de manejo de recursos, etc. son instrumentos de gestión que deben ser elaborados participativamente y actualizados periódicamente; estas cualidades garantizan el consenso en las actividades y minimiza los conflictos de uso. En este proceso debe efectuarse también la zonificación del área.

- **Gestión del área (20%)**

La gestión tiene dos elementos fundamentales, la participación o gestión participativa del área, que se refiere a acuerdos para el uso consumitivo o no de los recursos del ANP, donde debe participar la sociedad civil (pobladores locales, empresas turísticas, asociaciones de productores o de usuarios, etc). La compatibilidad y el ordenamiento de las actividades dentro y en el entorno de un ANP, con los objetivos de creación de la misma y la categoría de manejo, son elementos importantes en la buena gestión de las áreas y que garantizan más directamente la conservación de la diversidad biológica.

- **Monitoreo/conocimiento del área (10%)**

Es un instrumento para la gestión del área que debería retroalimentarla, pero puede ser independiente de la administración (el financiamiento y la ejecución pueden ser externos). El conocimiento del área y el seguimiento de su estado de conservación, es esencial para medir efectividad del manejo y es una función no implementada de las ANP. Además, puede ser un instrumento para contribuir a crear conciencia ambiental y servir como defensa del ANP.

- **Amenazas externas al manejo (15%)**

Las amenazas al manejo, por niveles de decisión iguales o superiores al que rigen al SINANPE, son sin duda de un impacto grande sobre la base legal, la administración y la gestión del área (pueden cambiar los usos). Este factor le da un alto nivel de inestabilidad al sistema y debe ser así considerado al momento de evaluar el SINANPE.

Antes de empezar la nueva actividad, será necesario revisar la matriz y actualizarla. Igualmente, se recomienda introducir la propuesta de modificación hecha en el presente documento, de modo que las evaluaciones consideren indicadores que también califiquen de alguna manera la gestión de las áreas.

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Annexo 1. Martiz Para Evaluar Prioridades des de Intervenciones

Criteria	PNBS	PNH	RNP	PNRA	PNTM	RBNO PNCA	RNPS	SNMT	PNM	RNC SNC	RNT	ZRPV
Biological representativity	3	4	4	4	1	4	4	2	4	1	4	2
Size of ANP	1	1	2	1	0	0	1	0	1	1	0	0
Ecosystem conservation status	3	3	2.5 [@]	4	4	4	3	4	3	3	3	3
Forests/CC potential	3	2	1	3	1	2	3	2	3	1	2	1
Institutional support	1.5	1.5	1.5	1.5	1.5*	1	1.5	0.5	1	0	1	1
Upgrade oportunties	2	2	1	2	0	2	1	1	2	0	0	0
Capability of potential partners	3	4	3	4	3	3	3	2	1	0	2	2
TOTAL	16.5	17.5	15	19.5	10.5	16	16.5	11.5	15	6	12	9

([@]) parcialmente, sin contar area marina

(*) INRENA administration special interest, tourism potential.

Anexo 2. Matriz de Evaluacion de Algunas Areas del Sinape (segun Vasquez, 1997).

	PNH	PNCA	PNBS	RNP	PNRA	PNM	RNPS	SMNT	ZRPV	RNT	PNTM	SNC	Max.
Saneamiento	1	3	3	3	3	1	3	3	0	2	0	2	6
Personal	6.12	3.9	4.79	4.09	5.75	6.78	7.86	3.1	0	4.52	0	0	14
Infraestructura equipo	1.92	1.92	4.8	1.92	6.72	6.72	6.72	6.72	0	1.92	0	0	12
Financiamiento	10.64	8.4	8.4	12.6	8.4	8.4	7	7	0	14	0	0	14
Planes de manejo	7.5	8.25	3.25	7.5	8.75	10	8.75	10	0	3.25	0	0	15
Planif. participativa	4	3	4	3	3	3	3	3	0	1.8	0	0	4
Manejo participativo	1	1	1	2	1	1	0	0	0	0	0	0	4
Programs de extension	3	3	3	1.95	3	3	3	3	0	0	0	0	3
Coordinacion Sector privado	4	4	4	4	4	4	4	4	0	0	0	0	4
Monitero Ecologico	6.3	5.85	6.03	5.4	4.95	4.5	7.65	8.1	0	5.4	0	2.7	9
Conflicto uso de Recursos	5.85	9	9	9	9	9	9	5.85	0	5.85	0	0	9
Conflicto con Ostros prog Estado	3.9	3.0	3.9	3.9	3.9	3.9	3.9	3.9	0	3.9	0	0	6
TOTAL	55.23	54.32	55.17	58.36	61.47	61.3	63.88	57.67	0	42.64	0	4.7	100

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